EDITORIAL INDEX—PAGE 2

DECEMBER 1950

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CCJ
COMMERCIAL CAR JOURNAL
THE MAGAZINE FOR FLEET OPERATORS

and more power to you from **REO**

The Choice of Champions—
DODGE "Job-Rated" TRUCKS

49 out of 86
champion truck drivers choose Dodge!

FIRST TROPHY Straight Truck class, won by Richard Wold, Glendenning Motorways, Inc., St. Paul. Wold, Minnesota State Champion, drove a Dodge GA-152 1½-ton "*Job-Rated*" Truck.

Given the privilege of driving *any* truck at the recent National Truck Roadeo, the nation's state champions selected Dodge by more than 2 to 1 over all other makes combined!

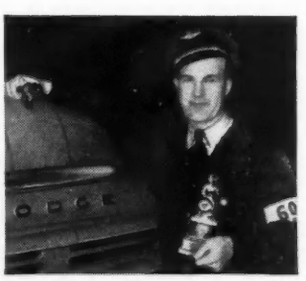
In the events in which Dodge trucks participated, 6 out of 9 national winners drove Dodge *"Job-Rated"* trucks.

The champions selected Dodge because of "its extra visibility, great maneuverability, good braking, and ease of handling." So, take a tip from the men who know: drive a Dodge *"Job-Rated"* Truck!

• • • •

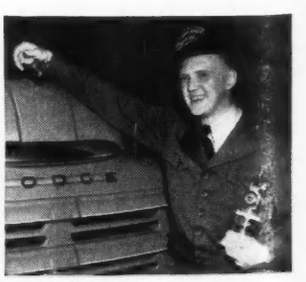
FIRST TROPHY Tractor, Tandem-Axle Semi-Trailer Class, won by O. E. Chapman, Pacific Intermountain Express, Oakland, California, who drove a Dodge 4-ton "*Job-Rated*" Truck.

SECOND TROPHY in Tractor, Tandem-Axle Semi-Trailer Class, won by Robert Rudesill, Glendenning Motorways, Inc., St. Paul, with a Dodge 4-ton "*Job-Rated*" Truck.



THIRD TROPHY Tractor, Tandem-Axle Semi-Trailer Class, won by Harry W. Pollock, Johnson Motor Lines, Inc., Baltimore, who drove a Dodge 4-ton *"Job-Rated"* Truck.

THIRD TROPHY in Straight Truck Class, won by R. D. Wallace, Johnson Motor Lines, Inc., of Charlotte, N. C., who drove a Dodge 1½-ton "*Job-Rated*" Truck.



THIRD TROPHY in Tractor, Single-Axle Semi-Trailer Class, won by Frank Kirkpatrick, Columbia River Truck Co., Portland, who drove a Dodge 2½-ton *"Job-Rated"* Truck.

For championship performance—drive **DODGE "Job-Rated" TRUCKS**

SEAL OUT THE WEATHER

Transparent Windshield Sealer

Makes windshields leak-proof to rain or snow. Always is crystal clear, colorless and pliable.

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COMMERCIAL CAR

Vol. LXXX Philadelphia, December, 1950 No. 4

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THIS MONTH'S FEATURE:

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CCJ Reader Digest

Bakery Charts Drivers' Operating Costs

One way to keep truck operating costs down is to let the drivers know what they are. Mrs. Karl's, a Milwaukee wholesale bakery, gets that information over in three dramatic ways—a detailed cost per mile summary, a graphic comparison against average national costs, and an individual truck consumption graph. Drivers with poor records can't escape these figures—especially when they are posted in the drivers' room and the garage, where others drivers can, and do, take every advantage to show their superiority. The best part of this system is that it gets results. See Page 52.

Body-of-the-Month—Bottlers'

Body Designer E. M. Westberg has developed his second special body for fleet use. This one is designed to help solve handling case goods efficiently. At the same time, custom appearance, which has maximum attention value, is stressed. Construction can be handled by the average fleet body shop at low cost. Parts are mostly of the standard prefabricated type. See Page 62.

Radiant Heating Cuts Fuel Costs 20%

Cedar Rapids City Lines occupied its present new building just a year ago. The building has interesting new design features with which the personnel had little or no experience, and which were suspect. Now it can be said that all features have proved highly satisfactory—especially radiant heating. Mechanics like radiant heat for its comfort, management have another reason—a 20 per cent saving in fuel cost. See Page 64.

JOURNAL

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Performance *vs* Present Day Fuels

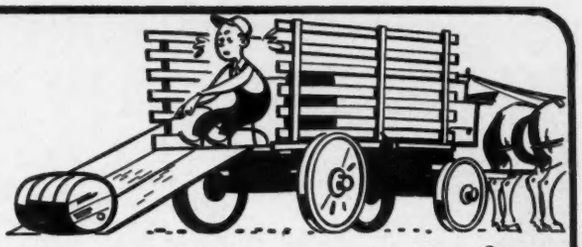
What kind of gasoline does the commercial trade need? How can those vehicles which now require such a wide spread in octane numbers be adjusted to get best efficiency from regular grade gasoline? Here are some valuable answers to these questions, presented by a well-known figure in the industry. Turn to page 55.

Brake and Traction Tests

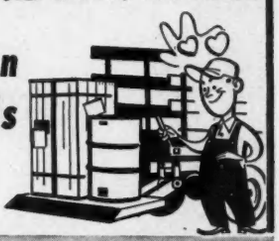
The results of brake and traction tests on lake ice have shown some interesting results from the standpoints of stability and control with 1. front wheels locked, 2. rear wheels locked, 3. all wheels locked during braking. Drawbar performance outlined in this study should provide valuable tips to operators of heavy-duty equipment during icy road conditions. Check over the test results—page 56.

How Schenley Won Its Safety Record

Established in 1941, the truck fleet of Schenley Industries, Inc., Cincinnati, has received a safety award for every year of its operation. During the last four years, its record is calculated at .03, said to be the tops in its category. The program responsible consists of three major factors, implemented by various controls that get results. See Page 51.



horse and wagon loading methods are **O-U-T!**



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JOB DATA

Truck: . . Mack EHT, 354 cu. in. displacement.
Owner: James A. Hannah, Inc., Green Bay, Wisc.
Service: Hauls 16 to 18 tons continuously, working 16 hours a day with various drivers.
Hauling Radius: . . . . . 200 miles.
Lubrication: Texaco D-303 Motor Oil SAE 30.

TUNE IN . . . TEXACO presents MILTON BERLE on television every Tuesday night. METROPOLITAN OPERA radio broadcasts every Saturday afternoon.

TEXACO

TEXACO

IN 285,000 MILES —ONLY .005" CYLINDER WEAR

Engine protected by TEXACO D-303 MOTOR OIL

From 1947 to early this year, this hard-working Mack truck piled up an impressive total of 285,000 miles. Its engine was lubricated exclusively with *Texaco D-303 Motor Oil,* and no major work was done on it. When finally taken down, cylinder wear was only .005" and all bearings were in perfect condition and were put back into service.

This performance is outstanding but not exceptional, according to James A. Hannah, Inc. They lubricate their entire fleet of 110 Mack trucks with *Texaco D-303 Motor Oil.*

Texaco D-303 Motor Oil gives protection like this because it is a fully detergent-dispersive oil especially designed to prevent formation of engine deposits —carbon, varnish, sludge. As this case history shows, it definitely guards against wear and protects bearings from corrosion. Use *Texaco D-303 Motor Oil* in *your* engines... for more trouble-free performance, and lower maintenance costs.

Two other cost-saving lubricants for truck operators are: (1) *Texaco Marfak* for long-lasting protection of chassis bearings, and (2) *Texaco Marfak Heavy Duty*—the wheel bearing lubricant that requires no seasonal change.

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Lubricants and Fuels
FOR THE TRUCKING INDUSTRY

CONFERENCE CORNER

PRESENTING FACTORY ENGINEERS' VIEWS ON TIMELY SUBJECTS OF INTEREST TO FLEETS

Subject: The HC Engine for Trucks

Question: Can We Expect Higher Compressions?

Fred B. Lautzenhiser, of IHC, says . . .

"As far as trucks are concerned, we think there are probably two factors involved in using higher compression ratios satisfactorily; first, there is the matter of fuel and its anti-knock qualities and second the temperatures built up in the exhaust valve as a result of long continued wide open throttle operation.

"With respect to the second item, better breathing and better scavenging certainly improves the top end performance. It should be noted, however, that the lower part of the power curve is sometimes not too greatly improved. Incidentally, the higher horsepower at the top end is not too valuable on account of the effect of wind resistance.

"It seems doubtful if truck engines will go to an 8:1 ratio in the very near future; however, when this is done it is believed that the overhead valve design will be used."

Roy B. Bender, of Studebaker, says...

"We believe that compression ratios on trucks as well as passenger cars will be revised upward from the present accepted ratios of approximately 7.0-1, but only as the general availability of suitable fuels permits. The recognized increase in fuel economy and engine efficiency, which results from higher ratios, will encourage this trend at a pace in keeping with the development of higher anti-knock qualities in commercial fuels. At present we feel that 8.0-1 is somewhat beyond the practical point for most current engines.

"With the increase in internal pressures, which accompany an increase in compression ratios, there will, no doubt, be considerable redesigning necessary to acquire the crankcase and block rigidity to accommodate ratios of 10 or 12-1. In this respect it is probable that various types of design will receive serious consideration."

B. B. Bachman, of Autocar, says . . .

"I am sure you realize that the trends which are becoming apparent in some of the new passenger car engines are only currently applicable in the heavy-duty field from the standpoint of providing a proving ground for the accumulation of experience that may point the way to the development in truck engines.

"If the results in the field justify the expectations, then unquestionably the way will be open for the introduction of these principles, at least in modified form, in bus and truck equipment. It seems quite improbable that such development will be more than along parallel lines. The distance between these parallel lines is based upon the essential differences in the service requirements. It also seems that there must of necessity be a definite period of lag betweeen the two developments, due to the necessity, first, of determining whether the development in the passenger car field is sound; and then, second, to what degree of the differences in service requirements present new problems."

Merrill C. Horine, of Mack, says . . .

"Compression ratios are governed largely by the octane values of commercially available gasolines and in this highly competitive motor truck industry we may safely assume that the compression ratios embodied in present-day truck engines are the maximum which are feasible in the designs now in use and everything commercially practicable has been done to these designs to suit them for the maximum compression at which they can be operated without detonation.

"An 8 to 1 compression ratio is very definitely not practicable for truck engines with present grades of fuel and there does not seem to be much reason for believing that materially higher octane values will be attained by commercial gasolines in the near future.

"In considering this question of high-compression engines, it should not be forgotten that it is not compression ratio that produces the desirable results but compression pressure and that by refinement of design it is sometimes possible to attain the maximum compression pressure which can be tolerated by available fuels at somewhat lower compression ratios in some engines than in others.

"Also it should be remembered that compression pressure alone is not the measure of knock tolerance since by developments in combustion chamber shape, mixture distribution, spark plug location and control of temperatures within the combustion space it is possible to sustain higher compression pressures with the same fuel."

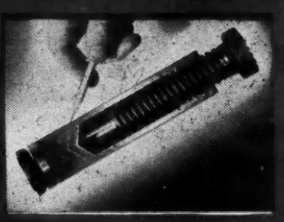
CHECK THESE IMPORTANT FEATURES WHEN YOU BUY PORTABLE HYDRAULICS

QUICK, EASY "POSITIONING"

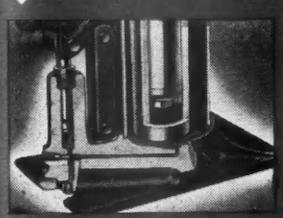
Walker "Series 900's" are designed to take an upright position automatically when lifted by the handle. The strong, malleable iron handle socket is located in the center of the jack and above the center of gravity. This famous Walker "Pendulum Balance" saves time and tempers when positioning the jack.

EXTRA RESISTANCE TO BENDING

To resist eccentric loads at top height, the lower end of the lifting ram in Walker "Series 900" is solid steel—not hollow as in some jacks. The Walker "Solid End" ram gives extra strength where extra strength is needed most—strength to resist the bending force from inevitable side thrusts.



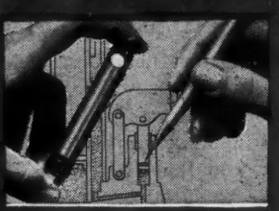
SMOOTH, DEPENDABLE LIFTING POWER



Efficient performance in any hydraulic jack depends upon internal valve action. In Walker "Series 900," suction and discharge valves work in perfect synchronization, at lightning speed. Closing action is always positive. This "Ryth-matic" valve action assures efficient, dependable operation.

LEAK-TIGHT HOLDING POWER

A jack must not only lift . . . it must also hold. If the alignment and fit of its parts is sloppy, jack fluid is bound to escape under the terrific operating pressures. In Walker "Series 900" vital parts are precision-machined to tolerances so close that load-holding ability is always assured.



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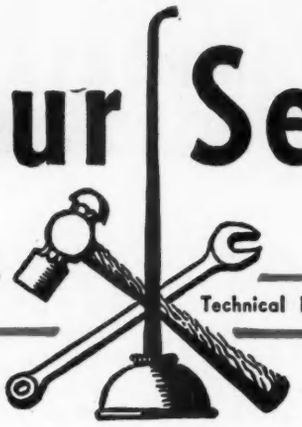

By M. K. SIMKINS

Technical Editor, Commercial Car Journal

About Heavy-Duty Brake Fluid

It is generally recognized throughout the industry that heavy-duty brake fluids are the best guarantee against deterioration, thickening and failure. Some fleet owners, however, are guilty of *not* knowing what they have in those master cylinders. With winter upon us every shop should see that the system is clean and that the brake fluid meets the SAE heavy-duty specifications. Cold temperatures tend to thicken the fluid, and a sluggish fluid can contribute to uneven braking due to the difference in length of the lines to the wheels. Especially on ice or snow, poor fluid will produce uneven braking. If your system is clean, you may not need to drain, flush and refill. But in any event assure yourself that what you are using is safe and durable for the winter months.

Use New Spark Plug Gaskets

There are few mechanics who haven't been tempted to reuse a spark plug gasket at times rather than take the time to wrestle one out of the stock room. They even may get by with it. However, spark plug gaskets are an important factor in the dissipation of heat from the plug base to the cylinder head. The new gasket is rolled to allow for compression under the proper torque with a tight seal and with proper positioning of the plug with respect to the head. When an old flat gasket is used, these heat transfer characteristics are changed so that the plug may operate too hot or too cold. Don't cut spark plug mileages by careless installation. Always use a new gasket; then torque the plug to specifications set up by the manufacturer.

Tips on Piston Pin Fitting

The method of fitting piston pins by "feel" has been criticized as being inaccurate and misleading by a leading manufacturer. Mechanics who are having trouble getting the noise out of the pins and keeping it out for several thousand miles of operation might look into the problem. August Sunnen, Jr., of Sunnen Products Co., says that a "feel" depends upon the surface finish in the hole as well as the straightness and roundness. Tests on good reamed holes, he says, have shown that a drag between pins and pistons can exist when the mean diameter of the hole is .006 in. larger than the pin. Thus the proper "feel" with a good surface finish will produce a pin with too little clearance. Then, if the hole is not true or has a rough surface, fitting to a "feel" will permit wearing down of the high spots so that an excessive clearance will soon result. He therefore recommends that the pin holes be gaged accurately and pins fitted with an average of .004 in. clearance or as specified in service manuals. It is recognized that not all manufacturers will agree with this suggestion, but it is offered with the thought that pin problems peculiar to a certain shop may be overcome to some extent with special care—and good machines—in fitting.

H. D. Oil is Not a Cure All

Heavy-duty oils will not *cure* engine sludge deposits. Most operators know this, but every now and then someone tries a dose of H.D. oil much in the manner of a cathartic—and wonders why it isn't effective.

Heavy-duty detergent oils will retain contaminants in dispersion to a satisfactory extent for normal conditions. However, there is a limit or saturation point beyond which this volume of oil cannot function as designed. If your engines are sludging, try other remedial measures. We know sludge is caused by low water jacket and crankcase temperatures, so the answer is getting these temperatures up to specifications. Coolant and oil temperatures should be maintained from 140 deg. F to 200 deg. F if the system is to throw off contaminants. The operator will know how to do this so remedial measures will be omitted at this time. He also knows that the crankcase ventilating system must be serviced periodically to aid the engine in purging diluents. As a last resort he will change oil more frequently, especially under cold weather operation. Use of heavy-duty oil, of course, will help this condition, but will show best results when aided by close attention to the above factors.

Winter Hazards

Condensation forming on the fuel pump linkage may result in failures. Plymouth Division recommends packing the area of the cam lever pin in the pump housing with water pump grease. A new gasket should be used with a hole just large enough to permit the cam lever to operate freely; this will retain the grease for a longer period.

Freezing of moisture in the oil gage tubing may result in failure of the oil gage, according to Plymouth.

for better brake service!

*WAGNER LOCKHEED HYDRAULIC BRAKE FLUID

functions under all driving temperatures

This high quality all-season fluid maintains its chemical characteristics and amply lubricates the brake system under all operating conditions. It mixes with other approved fluids, and is recommended for *all* hydraulic brake systems. Surpasses S. A. E. standards.

*WAGNER LOCKHEED HYDRAULIC BRAKE PARTS

are of the same high quality as original equipment

Genuine Parts by Wagner—pioneer manufacturers of Wagner Lockheed Hydraulic Brakes—assure perfect fit and dependable performance. Line includes factory-sealed repair kits with all essential parts for a specific job; individual parts; completely assembled cylinders.

*WAGNER CoMaX BRAKE LINING

is unsurpassed for quick, safe, smooth stops

The CoMaX line provides complete coverage for all your needs . . . in sets, rolls, blocks, slabs and cut segments. This long-wearing lining doesn't compress or swell, has uniform texture, and grips silently . . . Available everywhere through Wagner Jobbers.

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At Your Service

Continued from Page 10

Check up on this and blow the line free before you blame the gage unit itself.

If your Plymouths are operating under extremely dusty conditions, you will profit from the installation of a vacumatic crankcase ventilator now available for current model P-19 and P-20. This unit should be installed with a heavy-duty oil-bath type carburetor air cleaner and the improved engine oil dip stick. It is said that this equipment, installed in approximately one hour, is 98½ per cent effective in removing abrasives from the air.

Autocar Temperature Control

Autocar is using an improved cooling-system thermostat on its 447 and 501 Blue Streak gasoline engines which will promote a more even and efficient performance particularly under winter driving conditions.

The action of the new unit is positive and unaffected by pressure changes within the cooling system. The valve which regulates the circulation of the water is actuated by the movement of a piston which responds, in turn, to the expansion or contraction of a special, highly sensitive material contained in the thermostat housing.

The piston moves smoothly throughout its full stroke and will not "cycle" with sudden fluctuations of water temperature. When the water in the cylinder block cools, the thermostat valve is closed by positive spring action.

Improving Studebaker Ride

An improvement in the riding qualities of 2R5 trucks equipped with 7.10 x 15-4-ply tires can be obtained by installing Shock Absorber, Part No. 679849X4 on the front and retaining the standard Shock Absorber, Part No. 679849X3 on the rear.

Shock Absorber, Part No. 679849X4, is the standard front shock absorber for 2R10 model trucks.

This shock absorber will be standard on the front of any 2R5 model truck equipped with 7.10 x 15-4-ply tires effective with Serial No. R5-56975.

Plymouth Carburetor Change

A change has been made in the size of the idle restriction of carburetor (Model D-642) used on Plymouth cars built during and after January, 1950. The size of the idle restriction was increased to give a richer mixture at constant speeds, thereby eliminating the possibility of surge or uneven running. This condition, if present, is most noticeable at 18 to 22 mph, but may exist at speeds up to 40 mph.

Carburetors on which the change has been made are identified by a stamping on the webbing located on the float bowl cover. They are marked AO, BO, CO, etc. The letter preceding the "O" indicates month of manufacture; "A' stands for January, "B" for February, etc.

On cars built prior to the change, it is possible to enlarge the idle restriction with a drill. The operation enlarges the restriction only .002 in. and therefore should be performed with extreme care. The drilling should be done by hand using a 1.45 mm (.0571 in.) diameter drill.

IHC Oil Pressure Relief Valve Plunger

In some cases early engine failure on the GRD engines has been attributed to failure to install the oil pressure relief valve plunger and release spring when making engine replacement or overhaul.

When making replacement of an engine with a new engine or rebuilt skeleton engine, it is essential that oil pressure relief valve plunger, release spring, retainer nut and gasket be transferred from the old engine or new parts be installed if necessary. Otherwise, early engine failure will occur due to the lack of oil pressure.

IHC Exhaust Manifold Flange

Investigation of field complaints on L-190 and L-200 series chassis reveals that interference has been encountered between the exhaust pipe and front spring rear clip when chassis is operated over rough terrain. This type of condition results in exhaust manifold flange breakage.

If the above condition is experienced, it is recommended the bolts be loosened at the manifold flange and muffler to position the exhaust pipe approximately ¼ in. from the engine rear support. This should give approximately ¾ in. clearance between exhaust pipe and spring when spring is loaded. Tighten exhaust pipe bolt at muffler and then tighten exhaust pipe bolts at the manifold flange.

Distributor Point Tension

A visit through several fleet shops reveals the fact that mechanics are not checking breaker point spring tension when replacing points. It may be true that spring tension in new points is within limits set by manufacturers—in a great many instances. However, the one that causes later trouble will offset any time gained in "assuming" pressure is correct.

Proper spring tension especially in modern high-speed engines is a great factor in the life and efficiency of the contact points. Tungsten contact material requires a relatively high unit pressure as compared to other contact materials to break through the oxides continually forming on the contact surfaces and to help dissipate the heat.

Pressures of 20 to 30 per cent above recommendations cause abnormally high wear of the rubbing block and necessitate early replacement. It causes fatigue of the breaker arm, distortion of the contact faces. On the other hand low spring tension permits bounding of the breaker lever which in turn causes oxidation of the contact material. Result of low spring pressures is engine missing, especially at high speeds.

Spring tension scales are relatively inexpensive—but road failures aren't. Be sure you take the extra minute to set spring tension to specifications by bending the spring loop with either replacement or adjustment of points.

"We'll Pay You $50.00 A DAY...IF This Trailer Leaks"

YES...WE GUARANTEE IT'S LEAKPROOF!
WE GUARANTEE YOU CONSTANT OPERATION!
WE GUARANTEE DEPENDABILITY THAT SAVES YOU TIME... MONEY... BUSINESS!
MOST AMAZING GUARANTEE IN TRAILER HISTORY!

For Every Day Any New Trailmobile Tank Trailer

is out of Service Due to Leakage— We pay the Owner $50.00!

Think of it... any TRAILMOBILE Tank Trailer you buy is guaranteed for a full year against leakage! If it does leak, we'll pay you $50.00 a day for every day it is kept out of service.

You don't want to collect on that amazing guarantee, and its very existence is the best possible assurance that you'll never need to collect. It's also your assurance of 100% reliability... strict adherence to rigid schedules... operational economies that add up to substantial extra profits. But there's much more than we can tell you here. So, mail the coupon below...

Get the Whole Trailmobile Story

THE TRAILMOBILE COMPANY

Cincinnati 9, Ohio • Berkeley 2, California

MAIL THIS COUPON NOW!

THE TRAILMOBILE CO., 31st and Robertson Ave., Cincinnati, 9, Ohio

I'm interested in the Tank Trailer construction that makes possible the revolutionary TRAILMOBILE guarantee. Please send me full information.

*Name*_____

*Company*_____

*Business Address*_____

*City*_____ *State*_____

*My Position is*_____

The OVERLOAD

EDITORIAL COMMENT

For Christmas, 1950—High Praise and a Goal for 1951

FOR many a month now we have been hammering away at such weighty subjects as law violations, axle loadings, the Maryland Road test and other topics of vital interest to the fleet operator. Sometimes we've shot straight from the shoulder, campaigning for the things we believe to be right. Frequently we've mentioned old John Q. Public and the not-too-pleasant things he often has to say about trucks and their drivers.

Thus it comes as a welcomed privilege to devote the major portion of this page, especially just before the Christmas season, to an unsolicited tribute to truck drivers in the unusual form of Ken Black's poem.

Here's to the knights of the open road
Whose speed on hills is slowed by their load!
Though they're cussed and discussed by tourists
Who aren't blessed with the patience of jurists.
I take off MY hat to those trucking men
And many of my friends will say "Amen."
They'll help a woman with children in distress
For it happened to MY family in the World War II Mess.
Only recently on our way home from a trip
We saw a head-on caused by SOME DRIP.
Who were there with their flares, Brother,
To help prevent someone's causing another?—
Transport drivers with their cool words of caution:
"Easy does it," while keeping traffic movin'.
They flip their lights to low beam
When many motorists do not, as they seem
To be dreaming at the wheel
And make you mutter: "They're MORE than a heel."
Too, those of us who travel for a living
Know the signals those truckers are giving
To go ahead when we're in their rear
And they see the coast ahead is clear;
Then, after we pass and turn on the steam,
They courteously flip their lights to LOW beam.
Recently, a driver hauling new autos, extra alert,
Swerved off the road to help some jerk
Pass him on a down-hill grade
And avoid an accident ready-made.
"Safety is no accident" is the truckers' motto.
If WE aren't as careful as they then we oughta.

—by Ken Black

Ken's from Missouri so we can presume that he speaks from the heart. He has no connection with the trucking industry so we can presume that he speaks without bias. As a matter of record he is a traveling purveyor of children's wear, averaging 35,000 miles a year.

We believe that the industry can take pride and courage in the fact that the good things Ken has noticed about truck drivers outweighs the bad to such an extent that he was moved to create his little poem. And let us not forget that while he pays tribute directly to drivers, his remarks apply equally to the men behind the men behind the wheel. For without good training, good supervision and good maintenance, such performance would not be possible.

It is in fact this spirit of teamwork that provides a perfect setting for our Christmas greeting. From all of us on the CCJ staff to all of you on the greatest team the world has ever known—highway transportation—best wishes for the holiday season. Let us strive during 1951, by our actions on the highway, to produce more Ken Blacks and fewer of those so-called writers who jump on the nearest anti-truck bandwagon.

Bart Rawson
Editor

CCJ REPORTS

on News of the Industry

Fleet Supervisors Consider National Program

Representatives from some 12 Fleet Supervisors' groups met recently in Chicago to discuss the possibility of coordinating in a nationwide Society the efforts of local associations now scattered from Portland, Ore., to New York City. It was decided that a group survey be carried out by an interim committee which would study the possibilities and need for such a society and would outline a program of activities. Thomas J. Berk, of Metropolitan Life Insurance Co., and presently vice-president of the Society of Fleet Supervisors, Inc. of New York City, was made chairman of the committee. It was suggested at the conference that other groups, or other individuals interested in this project should get in touch with Mr. Berk at 1 Madison Ave., New York, N. Y.

SAE Notes

Sidney J. Williams, assistant to the president of the National Safety Council, has been chosen by the Society of Automotive Engineers as the Fourth David Beecroft Memorial Lecturer for his "substantial contributions to the safety of traffic involving motor vehicles." The Beecroft Memorial Lectures are the result of a $2,500 bequest to the Society by the late David Beecroft, SAE President in 1921.

Dr. Daniel P. Barnard IV, research coordinator for Standard Oil Co. (Indiana) will receive the 1949 Horning Memorial Award at the 1951 Annual Meeting of the Society of Automotive Engineers in Detroit. His lecture will be titled "The Role of Fuel in Engine Development."

The Society of Automotive Engineers has been called again to assist the U.S. Armed Forces with technical consulting service as it did during World Wars I and II, SAE President James C. Zeder has announced. A recent meeting with top echelons of the armed forces, he revealed, has resulted in subsequent interchanges on specific project possibilities by which SAE shortly will be given new opportunities to provide aid and counsel.

Tulsa Meet Studies LPG

Automotive and petroleum engineers, gathered at the SAE National Fuels and Lubricants Meeting in Tulsa, Okla., recently to study the possibilities of utilizing liquefied petroleum gas as fuel in motor buses.

The possibility of substituting liquefied petroleum gas for gasoline was recommended as one way to relieve the tightening economic situation created by rising costs of operation and static fare rates. The supply of the liquefied gas is large and growing, it was pointed out, and, where available, the fuel costs less than gasoline, but actually produces more power in motor bus engines.

AAA Backs 18,000-lb Limit

"The American Automobile Association will exploit all its efforts to retain the 18,000-lb axle weight for trucks until some unimpeachable authority can tell us that a higher weight is safe," Russell Singer, AAA executive vice-president, told the 48th annual meeting of the association in New York. Mr. Singer added that AAA members are becoming concerned over whether trucks are paying their fair share of road costs.

Lou E. Holland, AAA president, denied that highways are expendable and urged more stringent enforcements of size and weight laws.

Buhner Elected to NSC

Ed J. Buhner, former president of the American Trucking Associations, has become the first truck operator to serve as a member of the Board of Directors of the National Safety Council following his recent election to that organization.

(TURN TO PAGE 148, PLEASE)

DATES and DOINGS

JAN. 7-10, 1951—National Automobile Dealers Assn. Convention and the N.A.D.A. Equipment Exhibition, Municipal Auditorium, Miami Beach, Fla.

JAN. 8-12—Society of Automotive Engineers Annual Meeting and Engineering Display, Hotel Book Cadillac, Detroit, Mich.

JAN. 17-19—American Transit Assn. Regional Meeting, Hotel Texas, Fort Worth, Texas.

JAN. 21-23—Truck-Trailer Mfrs. Assn. Annual Convention, Edgewater Gulf Hotel, Edgewater Park, Miss.

JAN. 22-24—American Transit Assn. Regional Meeting, Thomas Jefferson Hotel, Birmingham, Ala.

FEB. 1-2—National Council of Private Motor Truck Owners Annual Meeting, Hotel Statler, Washington, D. C.

FEB. 1-4—Transport Vehicle Show Preventive Maintenance Demonstration, Madison Square Garden, New York, N. Y.

FEB. 27-28—American Transit Assn. Regional Meeting, Copley Plaza Hotel, Boston, Mass.

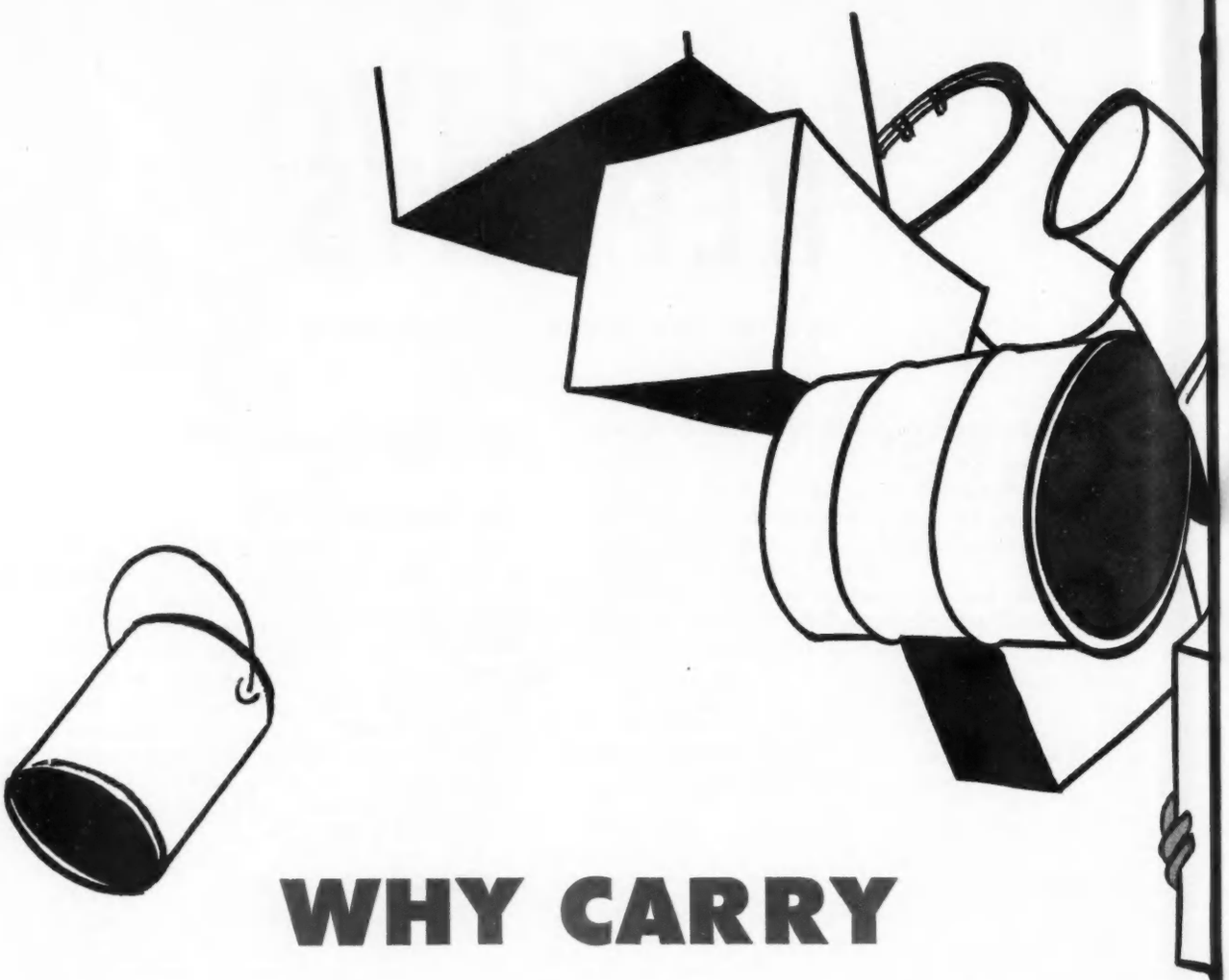
MAR. 13-16—American Transit Assn. Regional Meeting, Hotel Deshler-Wallick, Columbus, Ohio.

MAR. 19-20—American Transit Assn. Regional Meeting, Hotel President, Kansas City, Mo.

MAR. 21-24—Pacific Automotive Show, Civic Auditorium, Seattle, Wash.

APRIL 16-18—American Society of Lubrication Engineers, Bellevue Stratford, Philadelphia, Pa.

APRIL 30-May 4—Fourth National Materials Handling Exposition, International Ampitheatre, Chicago, Ill.



WHY CARRY ALL THIS LOAD?

One Multi-purpose Lubricant—Mobilube GX—protects all gears . . . cuts your inventory!

Now, through the use of a single, *multi-purpose* gear lubricant—*Mobilube GX*—you can eliminate any chance of error in the lubrication of your hypoid, spiral bevel, helical and spur gear units. *Mobilube GX* fully protects all types of gears, while—at the same time—it reduces your inventory and greatly simplifies application.

Mobilube GX guards against corrosion and rust. It does not channel . . . resists foaming . . . will not form deposits . . . does not separate in storage. It makes gear shifting easy . . . has unusually long service life.

You can get *Mobilube GX* in several SAE grades to satisfy all your gear requirements. Why not order a supply today to save yourself time, trouble and worry?

CCJ REPORTS

DETROIT DISPATCH

by LEN WESTRATE Detroit News Editor

'50 to Top '48 Registration Record

It now is certain that 1950 will wind up as the highest year in history in new truck registration and second best in production. At the end of September new truck registrations totaled 867,785 with only 167,389 more needed to equal the previous high mark of 1,035,174 registered in 1948. Registrations would have to average only 56,000 a month for the last three months of the year to beat the old record and, of course, they are going to do much better than that. Production this year is expected to be approximately 1.25 million units. At year-end total truck registrations in the U. S. are expected to be 8.7 million units, an all-time high.

'51 Production Outlook Under '50

Outlook for truck production next year is more confused than it has been at any time since the end of the war. Evidence mounts that, in addition to the limitations on aluminum already in effect, similar orders on copper and, quite likely, on steel can be expected. Prospects for truck production are better than for passenger cars, because manufacturers of cars and trucks probably will give the advantage to trucks when a choice is necessary; also because trucks have a better chance of getting materials under allocations programs. Effects of the aluminum order on truck production are not yet known, but a copper curtailment would be serious because it is almost impossible to substitute other materials for it. However, one thing is certain, truck production in 1951 certainly is going to be considerably below this year.

Trailer Builders Plan Appeal

Trailer manufacturers will be hard hit by the aluminum limitation order if it stands as originally issued. The order cuts consumption of aluminum by 35 per cent of the amount used the first six months of this year. Since production currently is much higher than it was during the base period, the cut actually would be much greater than 35 per cent, probably amounting to 40 to 50 per cent. It is understood that at least some of the trailer companies are planning an appeal.

'50 Trailer Production Ahead of '49

After a very slow start, truck-trailer production picked up speed, and this year will be second highest on record. Latest figures available cover the first eight months of this year and show a total of 431,650 units built or more than 10,000 ahead of the entire year of 1949. It is estimated that total production this year will hit approximately 70,000 units, second only to 76,234 built in 1946, the record year.

Reo May Offer Diesel Option

Soon Reo is expected to offer the Cummins JS-600 small diesel engine as an option on its 2300 series. The engine develops about 146 hp at 2500 rpm and 335 lb ft torque at 1800 rpm.

Studebaker May Not Use V-8 in Trucks

Studebaker is said to have no present plans to use its new V-8 overhead valve, 122 hp engine in its truck line. The six-cyl 102 hp engine will be retained, at least for the present. It has better torque characteristics at low speeds than the V-8, and is better suited for truck use. However, it is understood that the V-8 engine could be modified through suitable alterations of the camshaft and valve timing to give a torque curve more suitable for truck use.

Less Chrome on '50 Fords

Chrome plating on truck bright work has already become a casualty of the defense program in at least one case, and probably will be extended to others soon. The grille on the 1950 Ford truck originally was of chrome, but when it was announced it came out as a painted unit.

Reo Considering LPG Conversions

Reo has been doing considerable experimental work in adapting its engines for propane-butane operation. There is a possibility that it may soon offer a kit for converting engines now in use to such fuel and, also, that it will equip new trucks leaving the factory for propane operation at the customer's option.

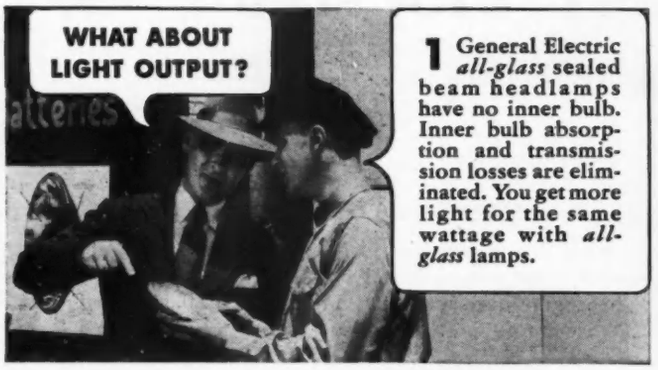
Peter Pays Paul

American truckers have their problems, but at least they are not as bad off yet as their fellow operators in New South Wales. A report from down under says that the government there has doubled the motor transport tax to 6 cents per ton mile, with the increase to be paid as compensation to the railroads for lost business. That's rubbing it in.

GM's Dual-Fuel Engine Ready

That dual-fuel engine, on which GM's Detroit Diesel Engine Division has been working since 1948, now is available. It burns natural gas after a "pilot charge" of diesel oil starts the combustion cycle. Use of "sour gas" or LP gasses is not yet recommended. Full data on these engines and a changeover kit next month.

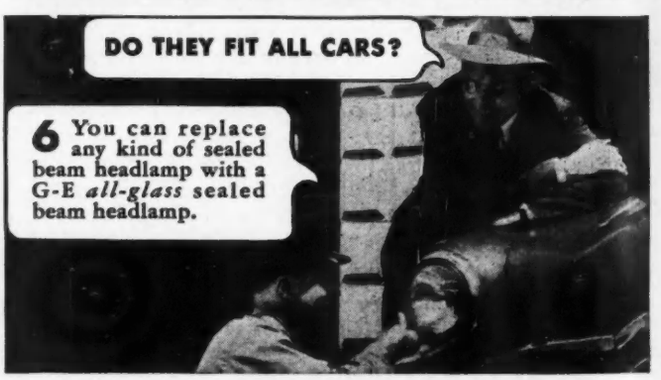
When you buy headlamps... remember these 7 facts

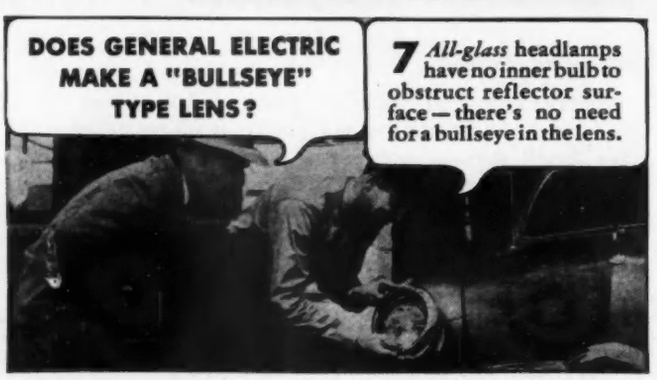

WHAT ABOUT LIGHT OUTPUT?
1 General Electric *all-glass* sealed beam headlamps have no inner bulb. Inner bulb absorption and transmission losses are eliminated. You get more light for the same wattage with *all-glass* lamps.

CAN ANY DIRT, AIR, OR MOISTURE GET INSIDE?
2 Positively not! The glass lens is fused to the glass reflector. No gasket is required in *all-glass* headlamps.

HOW DO FILAMENTS HOLD UP?
3 Lead-in wires in *all-glass* headlamps can be made big enough to be split lengthwise, insert filaments and clamp them in a vise-like grip. Vibrations and bumps can't jar filaments loose.

DOES LIGHT FALL OFF AFTER A FEW MONTHS?
5 The average G-E *all-glass* headlamp gives as much light at end of life as when it was brand new. It does not grow dim!




DOES GENERAL ELECTRIC MAKE A "BULLSEYE" TYPE LENS?
7 *All-glass* headlamps have no inner bulb to obstruct reflector surface — there's no need for a bullseye in the lens.

All-glass headlamps give more light when new ... more light throughout life!

General Electric all-glass headlamps

DO NOT GROW DIM!

GENERAL ELECTRIC

CCJ REPORTS

WASHINGTON RUNAROUND

by GENE HARDY Washington Correspondent

Allocation Program Still "in the Raw"

Producers of trucks, trailers, truck bodies and other supplies and equipment for the motor carrier industry will be scrambling for steel, aluminum, copper and other raw materials for some months. This is the only solid conclusion that can be pulled out of the confusion surrounding the efforts to set up allocation programs for these industries.

The Defense Transportation Administration recognizes the essentiality of highway transportation, and DTA Administrator Knudson has stated that he will present a claim for materials to the National Production Authority as soon as factual data on requirements is available. However, there appears to be varying degrees of need and also differing ideas on how to arrive at accurate bills of requirements for trucks, trailers, etc.

The truck body producers, for example, claim that the steel situation in this industry is critical and want some kind of allocation program as soon as possible. Trailer producers are having difficulty finding steel, but are more immediately concerned with the NPA order cutting back aluminum usage by 35 per cent. The truck industry's representatives in Washington are still following a wait-and-see policy.

DTA feels that any allocation program should be based on a survey of the needs of operators rather than materials estimates submitted by producers. Therefore, it would appear that the ATA survey of equipment needs of 15,000 fleet operators should play a large part in the picture. However, truck and trailer producers contend that this is unrealistic since it only covers a minute portion of truck users in the country. The producers contend that the only practical approach is estimates from those making the equipment. At press time, it was reported that Mr. Knudson was swinging around to this viewpoint.

. . . And Any Big Deal Unlikely for Months

Summed up, it would seem unlikely that any major allocation program for products used by the highway transportation industry would be in operation before the second quarter of 1951. By that time, the question of individual allocation programs might well be academic, since NPA expects to have something similar to the World War II Controlled Materials Plan in operation by June of next year.

Meanwhile, NPA is completing the organization of its new Transportation Equipment Division and industry advisory committees for practically all major transportation equipment items are being established.

Wage Control Board Makeup Suggested

Should wage control be instituted, it can be expected that there will be a special trucking group within the Wage Stabilization Board similar to the Trucking Commission which functioned as part of the War Labor Board in World War II. ATA is supporting this proposal and has submitted a report suggesting the makeup of such a body.

Industry Manpower Essentiality Sold

A definitive manpower policy for trucking will not come until the ATA survey is completed. The survey is designed to show the extent of manpower shortages and actual needs, so as to assure recognition of the essential characteristics of highway transportation. DTA holds that all commercial transportation, warehousing, port facilities and their maintenance are equal to arms production for manpower consideration and, reportedly, has sold this viewpoint to Selective Service officials.

ICC Kills PIE-Keeshin Deal

The Interstate Commerce Commission has struck a hard blow at transcontinental trucking by turning down an examiner's report which would have permitted Pacific Intermountain Express to acquire Keeshin Freight Lines, thereby giving PIE transcontinental routes. The Commissioners, voting 9-1, based their decision largely on the oft-reiterated ICC protect-the-rails policy claiming that rail traffic would be reduced by such motor carrier service, resulting in general impairment of rail service and increases in rates. Commissioner Mahaffie, the lone dissenter, described the majority decision as "a dubious policy of attempting to afford regulatory protection to the railroad industry generally at the sacrifice of improved motor carrier service. . ." This is one of the 43 pending cases on which 90 railroads had asked the ICC to defer action until a general investigation of "long-haul" trucking could be made. ICC has not yet decided whether to make such an investigation.

Sen. Myers' Committee to Go On

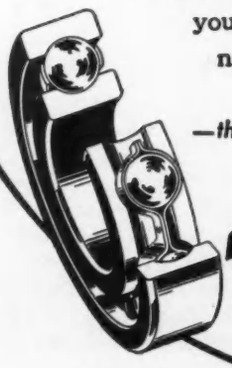
Defeat of Sen. Myers, Dem., Pa., chairman, Senate Subcommittees on Domestic Land and Water Transportation, will not throw a monkey wrench into exhaustive investigation being conducted by the subcommittee, according to members. However, new Senators will be appointed to the subcommittee when the 82nd Congress convenes. Authority of this subcommittee extends until March 31, 1951, but Chairman Johnson, Dem., Colo., head of the full Interstate and Foreign Commerce Committee, will probably ask for a further extension.

the *dependable* bearing for high-mileage fleets

Economy-wise fleet owners know from experience that SKF single-row, deep-groove ball bearings are engineered for long, maintenance-free life. Because of the large intimate contact between balls and the deep-groove in each ring, SKF bearings can sustain, in addition to a high radial load, a substantial thrust load in either direction—even at very high speeds. Your SKF Distributor has a stock of these bearings to meet your requirements—and meet your demands for rock-bottom maintenance and long-run economy.

SKF INDUSTRIES, INC., PHILADELPHIA 32, PA.

—the Pioneers of the Deep Groove Ball Bearing, Spherical Roller Bearing, Self-Aligning Ball Bearing. 7163



8 REASONS WHY SKF IS PREFERRED BY ALL INDUSTRY

Integrity · Craftsmanship · Metallurgy · Tolerance Control · Surface Finish · Product Uniformity · Engineering Service · Field Service

LAUGH IT OFF

Weavin' Willie, our City Driver, can't figure out why they call the stuff in whiskey "neutral spirits." Willie says that after his second drink he shifts from neutral into high, and after his fifth one, goes into reverse, and spends the next day in low.

CCJ

Truck Mechanic: "Before we were married you called me handsome, virile and appealing."

Wifey Dear: "I know it."

Truck Mechanic: "And now you don't call me anything."

Wifey: "Well, you ought to be glad that I possess such self-control."

CCJ

Freight Checker: "Hey, boy, how come you are sleeping on the job?"

Freight Handler: (Thinking quickly) "Goodness gracious, can't a man close his eyes for a minute of prayer?"

CCJ

Book Salesman: "If you can spare me ten minutes, sir, I can demonstrate to you how to earn twice the money you are now getting."

Personnel Manager: "I do that now!"

CCJ

FLOSSIE FLORA SAYS THAT EVERYTIME SHE DROPS A HINT TO HER BOY FRIEND ABOUT THEIR WALKING DOWN THE AISLE TOGETHER, HE TAKES HER TO THE MOVIES.

CCJ

Two safecrackers were paying a nocturnal visit to the office of a large commercial vehicle distributor, who had been doing a brisk business. One of the frequently imprisoned characters took off his shoes and socks and began to twist the dial on the safe with his toes. His pal grew impatient:

"Come on, Mike, let's blast dis thing open and lam outta here!"

"Ah, don't be chicken," drawled the other, "it will only take a minute longer dis way, and boy will it drive dem fingerprint experts nuts."

CCJ

Traffic Officer: Did you get the number of that car that knocked you down?"

Safety Director's Wife: "No, but the lady driving it had on a three-piece tweed suit, lined with Canton crepe, and she wore a periwinkle hat trimmed with artificial cherries."

CCJ

City Driver: "I was walking down the street last evening and picked up a dazzlingly beautiful girl."

Road Driver: "Lucky as ever, aren't you? What did she say?"

City Driver: "She just said 'Thank you,' and walked away."

CCJ

BARTENDER: "DO YOU WANT RED WINE OR WHITE?"

AUTO PARTS CLERK: "OH, IT MAKES NO SPECIAL DIFFERENCE. I'M COLOR BLIND."

CCJ

A coffee salesman was traveling through his southern territory closely parallelling the routes of several motor carriers. While waiting for the owner of a roadside diner to give him an order, he struck up a conversation with a big bruiser of a truck driver who was feeding the inner man on hotcakes, bacon and coffee. "I've heard that you truckers drink quite a bit of coffee," he commented, just to stimulate a little interest in the shade-grown bean.

"Yes, sir," drawled the truck driver, "I expect we're just about the heaviest consumers, next to the Navy Why, sometimes I drink fifty cups a day."

"Fifty cups a day? Doesn't it keep you awake?" cried the startled salesman.

"No, sir," was the reply. "But it shure helps!"

CCJ

Bachelor Garage Operator: "Dearest, may I douse the hall light?"

Sweet Patootie: "You may!"

B.G.O.: "Could I turn off the big ceiling light?"

S. Patootie: "I wish you would."

B.G.O.: "Now can I turn off the sofa light?"

S. Patootie: "Certainly!"

B.G.O.: "Now that it's dark in here, can I ask you an important question?"

S. Patootie: "Of course you may, lover boy."

Bashful Garage Operator: "Do you think this luminous pin is worth two dollars?"

CCJ

Blonde Billing Clerk: "There's just no use discussing things with you! We cannot agree on a single thing."

Handsome Rate Clerk: "You're wrong. For instance — if you should go into a room with two beds in it, one with a woman in it, and one with a man in it, with whom would you elect to sleep?"

Blonde Billing Clerk: "Why, with the lady, of course!"

Handsome Rate Clerk: "Well, see there now. We are in complete agreement—so would I!"

(Resume Work)

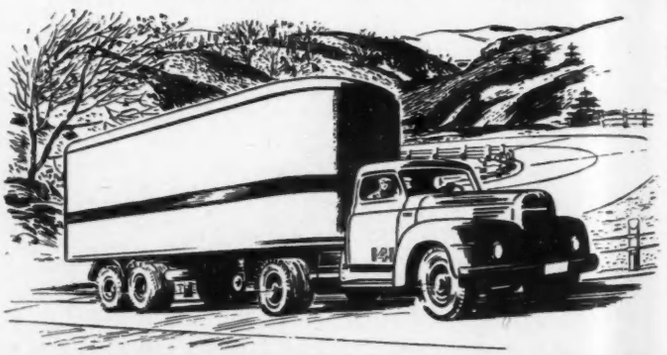
"—And here are your bills of lading."

The Figures Jumped ...and all costs

The Truckers Themselves made the great tire discovery—their own mileage records exceeded its maker's most extreme estimates.

The Truckers Themselves revealed its vast new capacity—with mileage gains as high as 40%.

The Truckers Themselves built its endless demand—saving millions of dollars in operating overhead as the great fleets take them on.



UNITED STATES RUBBER

CCJ FEATURE SECTION

How Schenley Achieved its 4-yr. .03 Safety Record

Distillery fleet's results based on a 3-point program, accenting driver selection

In the nine years that Schenley has operated its own fleet, it can point to a good record for each year. Table at right shows year-by-year record. At top of page is part of Schenley driver personnel with A. G. W. Brown, Safety Director, at extreme left, and John Wollering, assistant, at extreme right

By A. G. W. Brown

Transportation Engineer, Schenley Industries, Inc., Cincinnati, Ohio

Annual Highway Safety Record
Motor Truck Fleet
Schenley Industries, Inc.

*1941	.....	25,000 miles free of accident.
1942	.....	37,186 miles per chargeable accident.
1943	.....	52,572 miles per chargeable accident.
1944	.....	80,679 miles per chargeable accident.
1945	.....	150,043 miles per chargeable accident.
1946	.....	580,962 miles free of accident.
1947	.....	765,984 miles with only one chargeable accident.
1948	.....	794,353 miles free of accident.
1949	.....	845,973 miles with only one chargeable accident.

Dec. 15, 1945 to Nov. 14, 1949 ... } 2,998,071 miles with only one chargeable accident.

*Fleet established December 15, 1941

IT IS AXIOMATIC that the best way to establish an outstanding safety record is not to have any accidents. That, of course, is the same as saying the best way to overcome insomnia is by sleeping. And it's just about as difficult.

Those of us with the motor truck fleet of Schenley Industries, Inc., headquartered at Lawrenceburg, Ind., often are asked how we have managed to win nine consecutive annual safety awards for our transcontinen-

(TURN TO PAGE 136, PLEASE)

FIG. 1. F. J. Small, shop superintendent, personally keeps track of complaints

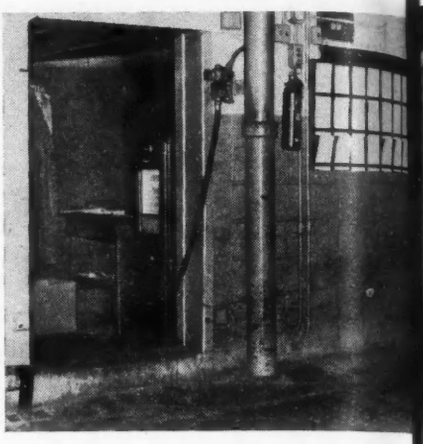


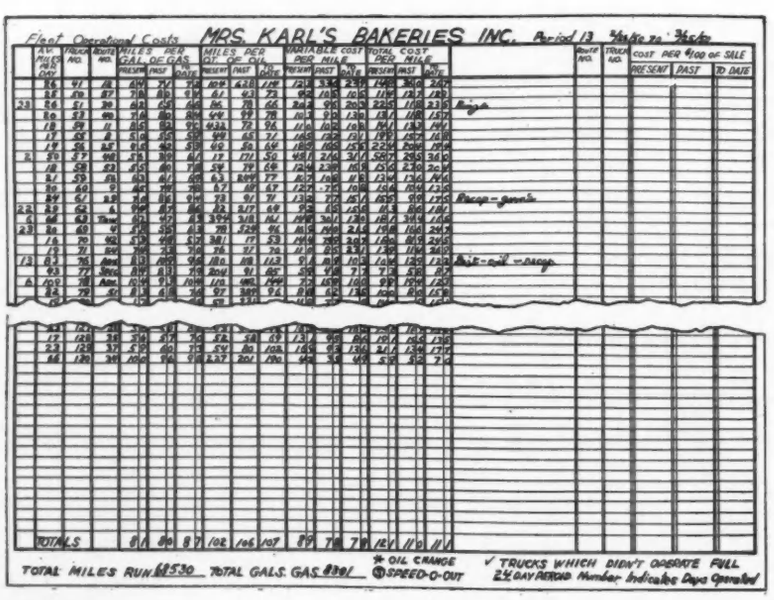
FIG. 2. Here, adjacent to Mrs. Karl's gassing station is vehicle report rack

Bakery Charts Drivers' Truck Operating Costs

Cost-per-mile data for each truck driver, publicized for all to see and admire (or ridicule), has been instrumental in lowering operating costs

BAKERY SALES to grocery stores is a high volume, low unit profit operation in which costs must be closely watched. At Mrs. Karl's Bakery in Milwaukee, Wis., detailed truck operating costs are not only kept but results are posted in the garage and driver's room, so that everyone in the organization knows how efficient every driver is. A man's pride tends to make him do his best. Besides the tabulated figures on truck costs, graphs showing cost per mile and miles per gallon of gas also are posted for every period.

Although contests aren't run every


Fleet Operational Costs MRS. KARL'S BAKERIES INC. Period 13

TOTALS

TOTAL MILES RUN 68530 TOTAL GALS. GAS 8391

* OIL CHANGE @ SPEED-O-OUT

✓ TRUCKS WHICH DIDN'T OPERATE FULL 2½ DAY PERIOD Number Indicates Days Operated

FIG. 4. This 11x14-in. cost-per-mile summary is posted in drivers' room for open comparison.

FIG. 3. Typical vehicle used in Mrs. Karl's wholesale bakery delivery fleet

By L. T. Bruhnke

month, the company does offer two five-dollar prizess for the greatest increase in miles per gallon and two five-dollar prizes for the best miles-per-gallon results. H. J. Crider, office manager, stated that the overall gas economy this year was much better than last, because of the contests, and he was very much pleased with the results. The same men do not win every month, and all drivers are much interested in the results. Drivers complain to the garage superintendent if their trucks aren't economical instead of waiting for him to make adjustments.

The fleet now consists of 64 trucks, which vary in size from ½ ton to 1½ ton and in age, from 1937 to 1950. (They still have one 1936 truck.) Five years ago they had 37 trucks. The older trucks are periodically replaced but, as long as costs are competitive and appearance isn't obsolete, there isn't any reason to rush replacement. Trucks are painted every two years for merchandising reasons, so the fleet is a nice looking one in spite of still having some 1937 models.

Daily truck mileage varies from 15 miles, on some city routes, to 150 on the country ones. Trucks leave from 4 a.m. to 7 a.m. and return

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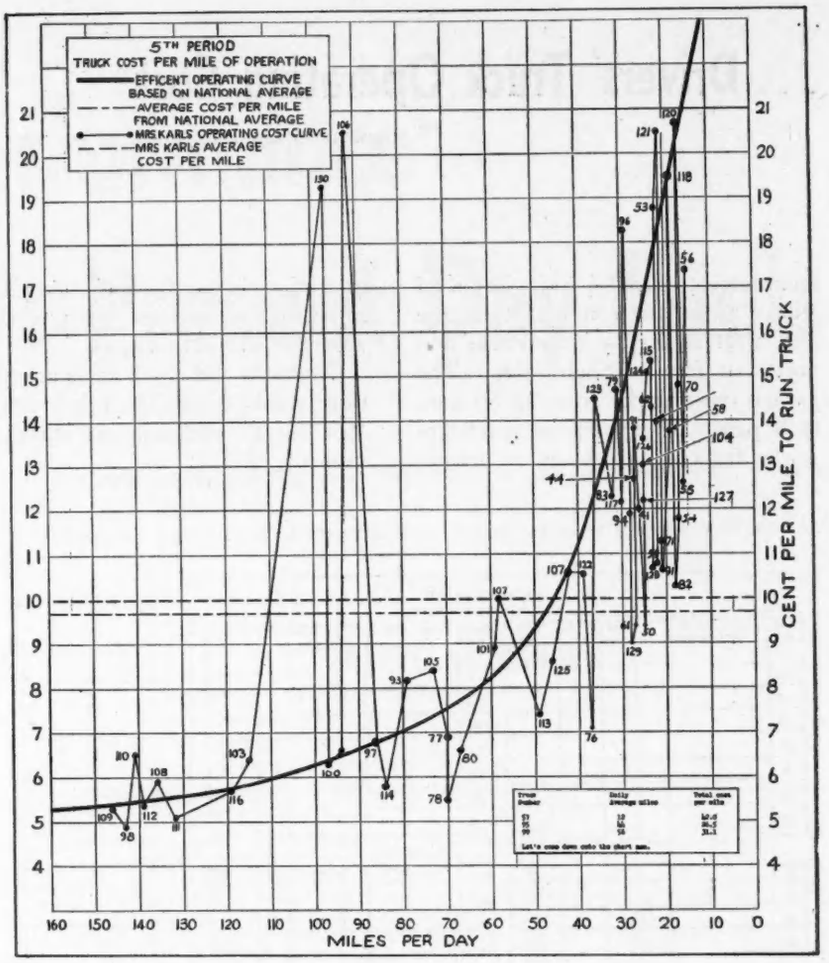

5TH PERIOD
TRUCK COST PER MILE OF OPERATION
EFFICENT OPERATING CURVE BASED ON NATIONAL AVERAGE
AVERAGE COST PER MILE FROM NATIONAL AVERAGE
MRS KARLS OPERATING COST CURVE
MRS KARLS AVERAGE COST PER MILE
CENT PER MILE TO RUN TRUCK
MILES PER DAY

FIG. 5. In addition to summary (Fig. 4) this comparative graph is plotted against national average (heavy line)

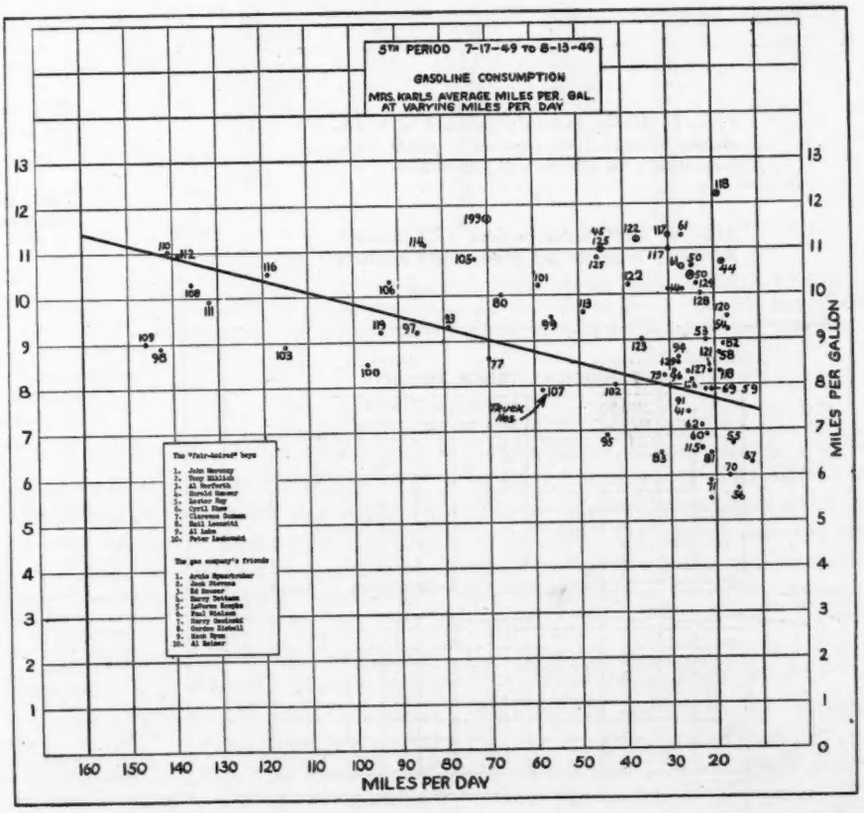

5TH PERIOD 7-17-49 TO 8-13-49
GASOLINE CONSUMPTION
MRS. KARLS AVERAGE MILES PER GAL. AT VARYING MILES PER DAY
MILES PER GALLON
MILES PER DAY

FIG. 6. Separate chart shows gas consumption. Circled dots show poor mpg

. . . Drivers' Truck Operating Cost

Continued from Page 53

from noon to about 4 p.m. The Karl trucks go as far south as the state line, west as far as Watertown, and north as far as Sheboygan. The garage crew works from 11:30 a.m. to 8 p.m. An apprentice mechanic works from 4 a.m. to noon, taking care of early service and doing light repairing or general garage work when he isn't out on calls.

Gas tanks and crank cases are filled when trucks return from their routes. Mrs. Karl's enclosed gas station is shown in Fig. 2.

Near the gas pump, F. J. Small, garage superintendent, posts 5½ x 8½-in. blank motor vehicle report cards. Drivers fill these out if brakes are faulty, windshield wiper doesn't work or for trouble of any kind. Before the garage crew goes home, the trouble is either remedied or the truck replaced.

When work is completed, the mechanic indicates it on the card and initials it. Small then places the complaint cards in a rack near his desk, as shown in Fig. 1. If a driver complains that the requested job was not

(TURN TO PAGE 144, PLEASE)

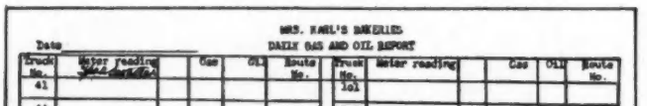


FIG. 7. Daily gas-oil report, 8½ x 14, shows daily disbursements with two-day totals to check consumption

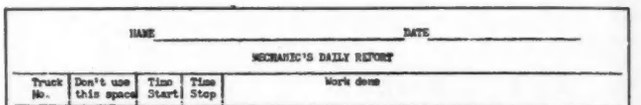


FIG. 8. Mechanics make daily report from which charges to truck are made

FIG. 9. Periodical report (13 4-week periods) is made up from daily reports

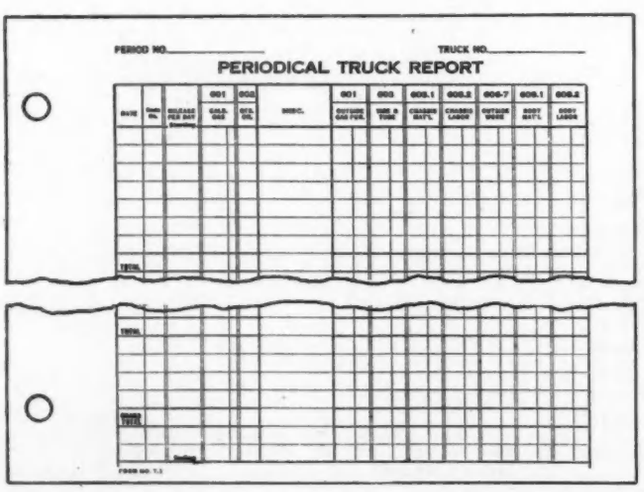
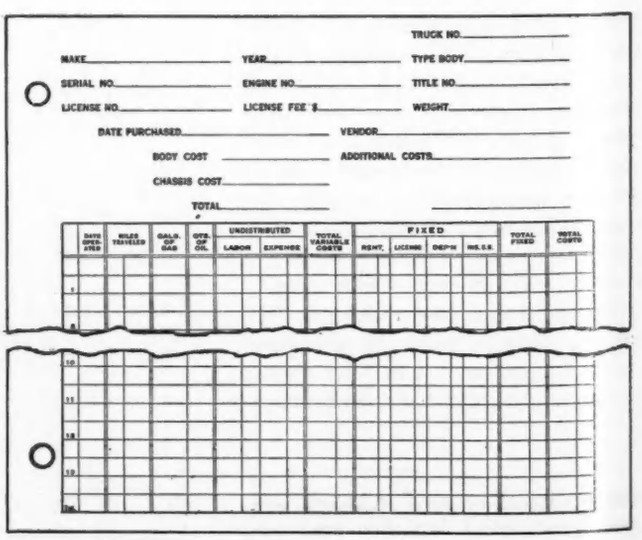


FIG. 10. Individual truck cost report contains costs and annual depreciation



The Case of Performance* vs Present Day Fuels

Proper maintenance and adjustment of vehicles will enable them to get better performance from regular grade octane fuel

By W. S. Mount
Manager, Product Engineering Div., Socony-Vacuum Oil Co., Inc.

WHAT kind of gasoline does the commercial trade need? Is regular the right choice, or should we have a special commercial grade? Octane number and manufacturing cost go hand in hand. The quality should be just high enough to avoid undue knock, but not one octane number beyond this level. Nothing is gained with octane numbers after the knock is suppressed—and nothing in gasoline is quite so expensive as anti-knock quality. So it would appear that as a start, we would need to know the exact level of requirement.

The approach to quality requirement is illustrated using a sample of truck and bus requirement measurements for 102 vehicles in normal operation during 1947-1948. Twenty-two vehicles were city and inter-city buses, and the remainder represented trucks from light pickup to tractor-trailer heavy-duty units. Twelve popular makes were included. Typical octane requirements are shown in Fig. 1. Where is the nice clear-cut line at which to establish the quality requirement? Immediately apparent is a wide variation in quality need of individual vehicles of any one make. They vary as much as 25 octane numbers from one to another, paralleling the behavior of passenger cars where identical year, model and engine specifications show 15-25 octane numbers variation. From one commercial make to another the variation in requirement may be as much as 10 octane numbers, showing a total range of approximately 30 octane numbers in the group represented by Fig. 1.

No one gasoline can be matched efficiently to the needs of vehicles ranging from 60 to 92 octane number. Until engine knocking tendencies are brought under better control and the requirement range is substantially reduced, the fleet operator will pay a penalty of higher than necessary fuel costs for some units and will fail to exploit maximum performance of others.

We must live with today's vehicles more or less as they are. Quality high enough to suppress knock in all vehicles would require top premium grades, which on a cost basis is not justified in fleet operation. Besides, its quality would be completely wasted in the great majority of vehicles. One way to handle the unhappy situation is to supply an octane number not good enough for some, and much too good for others.

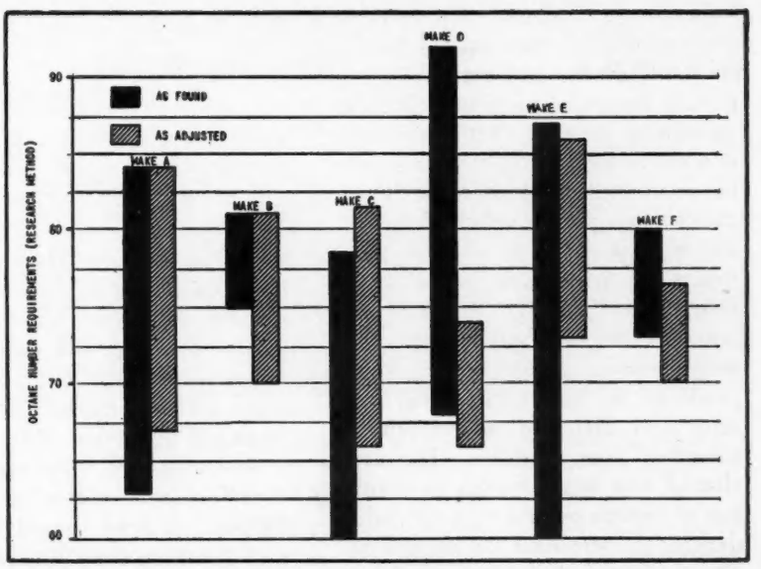


Fig. 1. Sample test of trucks and buses shows high variation in octane requirements of vehicles of same make. (Black bar). Shaded bar shows narrowing of requirements after proper adjustment of spark

Call for Regular Grade

OVER the country today the bulk of regular grades fall in the bracket between 81 and 87 Research

(TURN TO PAGE 98, PLEASE)

* Excerpted from a paper presented at the SAE Transportation & Maintenance meeting in N. Y.

2 & 4-Wheel Drives Compete in Brake and Traction Tests

Braking of four driving wheels produces better stability and control; Four wheel drive with proper torque and load distribution provides maximum traction in Pine Lake ice tests

By A. H. Easton*
Director, Truck Research Project
University of Wisconsin

AS A PART of the Truck Research Project established at the University of Wisconsin and financed to date by grants from the Four Wheel Drive Auto Co. of Clintonville, Wis., tests were conducted on lake ice to determine the behavior and traction of trucks with various types of drive and to determine fundamental information relative to the tractive coefficients of friction on ice.

Because of the many inherent hazards involved in this type of testing on the highway, and even more important the traffic hazards created by attempting ice tests on the highway, it is almost imperative that such tests be conducted on lake ice. Fig. 1 shows a one-quarter mile long course, 200 ft wide prepared on Pine Lake near Clintonville by the Four Wheel Drive Auto Co. After the snow was removed the ice was shaved and swept with a power broom which produced an ice surface free from sand and dirt and as smooth or smoother than road ice. The area cleared was large enough to permit loss of vehicle control without undue danger to personnel or equipment. The thickness of the ice was 16 to 20 in. during the course of the tests.

The test vehicles used in this study were a representative commercial four wheel drive truck and a representative commercial rear wheel drive truck. They are as nearly alike in capacity, engine power, gear ratio, and tires as could be expected of two vehicles manufactured by different firms. The four wheel drive truck was equipped with a center differential between the front and rear axles. This differential allows relative motion between the front and rear drive shafts, thus preventing a build up of torque in the power train when operating on a surface with a high coefficient of friction. This vehicle may also be operated with the center differential locked (CDL), which prevents relative motion between the front and rear drive shafts. The lock is normally used when operating on a surface with a low coefficient of friction. A field dynamometer was used for measuring drawbar pull.

From observation of previous tests conducted on lake ice and operation under icy highway conditions, it was noted that there was considerable difference between the stability of the various types of drive after skidding began. To study the differences, the four wheel drive truck was arranged so that brakes and power could be applied to the front and rear axles separately or in combination. This vehicle could be used as a front, rear, or four wheel drive. The rear wheel drive truck was used for the majority of the tests on that type of a vehicle.

Two types of tests were employed to determine relative stability; namely the locking of the brakes on the straightaway and the application of excess torque, both on the straightaway and on a curve.

The results of tests relative to safety and stability, although obtained with heavy-duty trucks on ice, nevertheless apply directly to all automotive vehicles regardless of surface if a given set of wheels is caused to break traction by the application of brakes or excess torque. The following conclusions are based on actual braking tests on an ice tangent or curve:

★ Locking the rear wheels only, produced an unstable condition resulting in partial or complete loss of the vehicle control. Fig. 2.

★ Locking the front wheels only, produced a condition in which the vehicle traveled on a straight path, which coincided with the centerline of the vehicle frame. Under this condition there was almost complete loss of steering control. Figs. 3 and 4.

★ Locking all four wheels produced a condition of near equilibrium. The vehicle traveled a path which coincided with the direction of motion of the center of gravity at the

(TURN TO PAGE 108, PLEASE)

—* Excerpted from a paper presented at the SAE National Transportation Meeting in N. Y.

Fig. 1. The test course at Pine Lake is ¼ mile long. Snow was removed and the ice was shaved prior to test

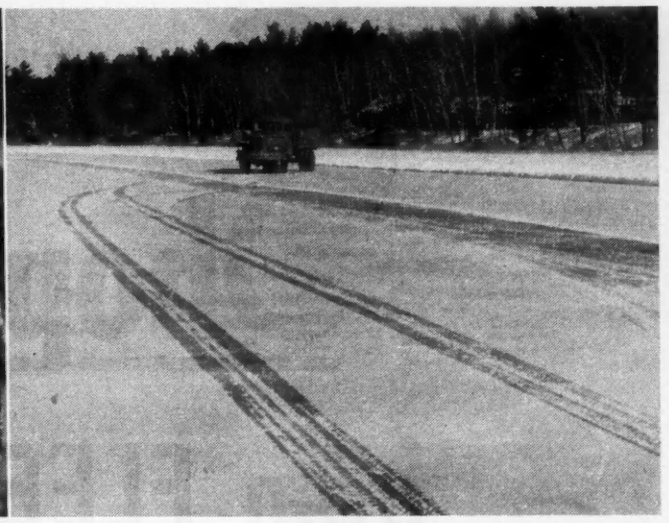


Fig. 2. Locking rear wheels only on straightaway produced a skid as shown, resulting in complete loss of control

Fig. 3. Locking front wheels only on straightaway caused vehicle to travel a path coinciding with center line of the frame with complete loss of steering and braking control.

Fig. 4. Above. On curve a similar condition was produced

Fig. 5. Locking all wheels on straightaway produced a condition in which vehicle traveled a path coinciding with direction of travel of center of gravity.

Fig. 6. Below. Locking all wheels on a curve enabled driver to retain control

Shop hints from FLEET SHOPS

1. Cooling System Flusher

by Robert J. Hood
Ashland, Ohio

This home-made cooling system circulating type cleaner will do a very satisfactory job. It can be made up in the shop from spare parts and a few compounds that may be around.

The cleaner consists of a heating plate, either gas or electric, a 100-lb grease can, a regular sump pump, fittings and hose. The solution is boiled in the container and pumped out the outlet to the block or radiator. The sludge return hose is clipped to the side of the barrel and is readily detached so that it can be reconnected to the outlet side of the sump pump for reverse flushing of either the radiator or the block.

2. Star Washer Tool

by Martin G. Hall
Los Angeles, Cal.

I made a tool which is used to bend the ears over on the star washers that lock the rear axle nuts on all full floating axle International trucks.

A 5/8-in. rod is ground to a flat point and the tip is bent at right angles as shown. A 1/2 x 2-in. steel block 4 in. long is welded to the opposite end to serve as a striker plate. To use, hook the lip over the ear and strike the other end with a hammer thus bending down the locking nut.

3. Trailer Connector Tester

by Paul Lee
Syracuse, N. Y.

Here is a testing device for locating trouble in the electrical system of the trailer. It will save a lot of road failures from defective wiring or bulbs.

A spare female plug is wired to correspond to the wiring system of the trailer. This may be the four, six or the new seven-wire connector, depending upon what the fleet has standardized on. The connector is wired to a battery clip, and a ground wire is made up from a length of cable and two battery clips.

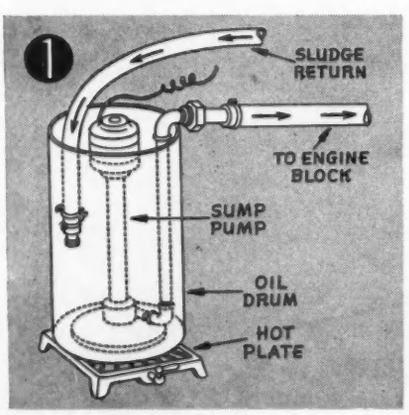
When the test plug is inserted in the trailer receptacle and the battery hooked up, all trailer lights should light. Defects thus can be found easily without the necessity of using the tractor. A battery cart will simplify the job of moving batteries around the shop or trailer parking lot.

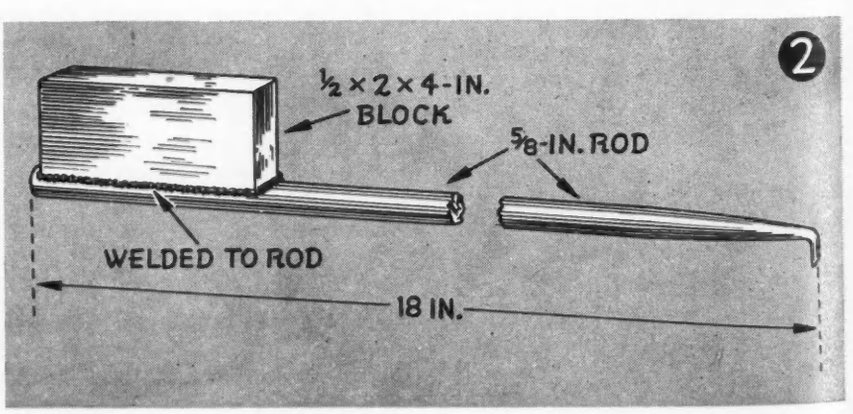
4. Chain Repair Tool

by W. C. Shuster
Conestoga Transportation Co.
Lancaster, Pa.

Here is an air-operated tire chain tool that provides a valuable improvement over the hand or foot-operated model.

We took a regular heavy-duty chair repair tool, removed the handle and mounted a regular air brake chamber above it on a bracket as shown. The bracket is fashioned from sheet steel and provides a mount for the chamber in such a position that the push





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$5 FOR ALL HINTS PUBLISHED EACH MONTH

rod can be directly connected to the jaw. This modification will vary, of course, with the type and model of repair stand used.

A regular air treadle valve is mounted on the bench leg and lines are connected between the two. The source of air is the shop supply line.

5. Reamer Holder

by Charles Levy
Gordon Baking Co.
Long Island City

In order to protect the primary cutting edges of our stock of expansion and fixed reamers when not in use we have come up with the idea of placing them in a length of radiator hose of a size corresponding to the reamer.

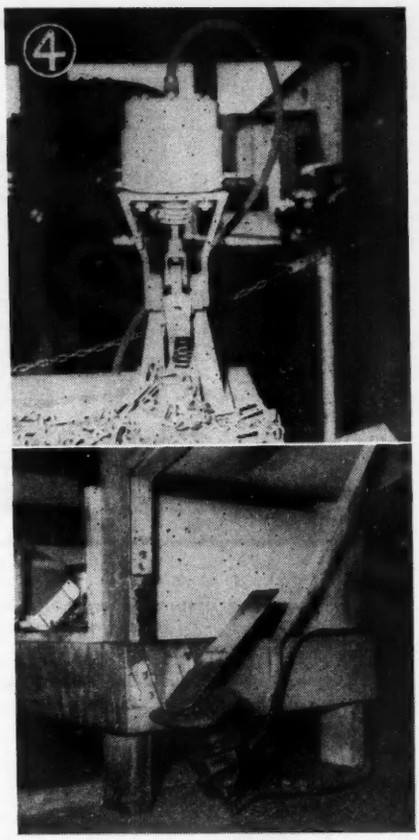
A series of these lengths of hoses can be attached to a board with hose clamps, and the ends can be plugged with wooden plugs or corks so that the entire set is easily available. Size markings or identification can be made just above each reamer to simplify selection of the right one for the job.

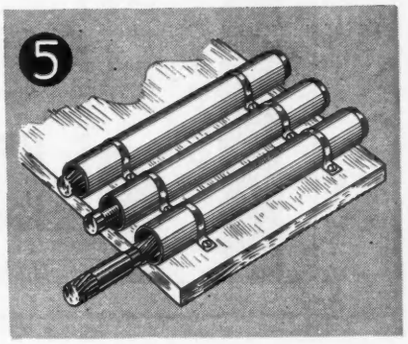
6. Bushing Installing Tool

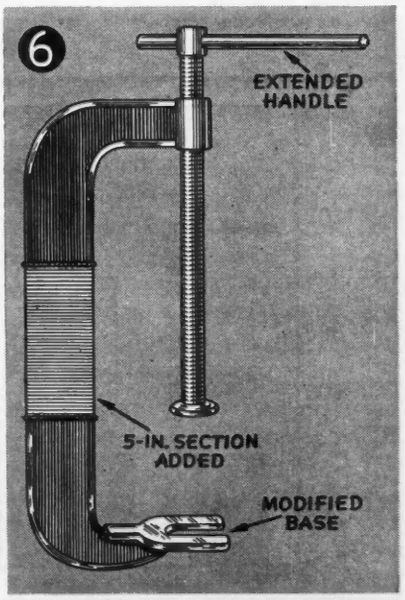
by Ray Dickenson
Dohrn Transfer Co.
Galesburg, Ill.

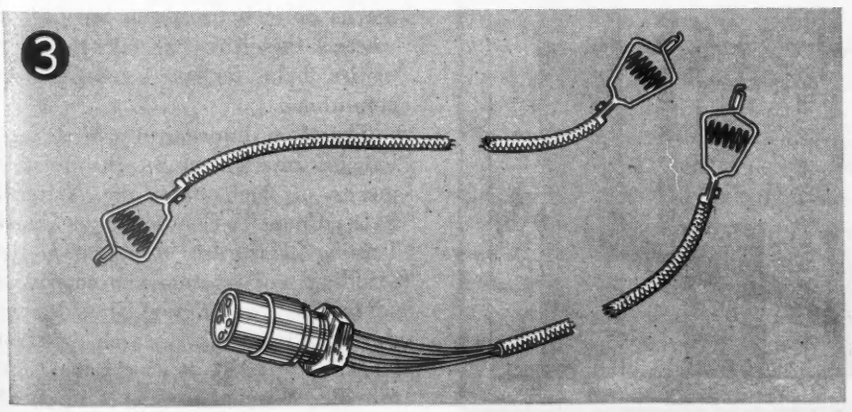
We use a modified C clamp to put in radius arm rubber bushings in all trailers. With this tool one man can do the job easily and without complications.

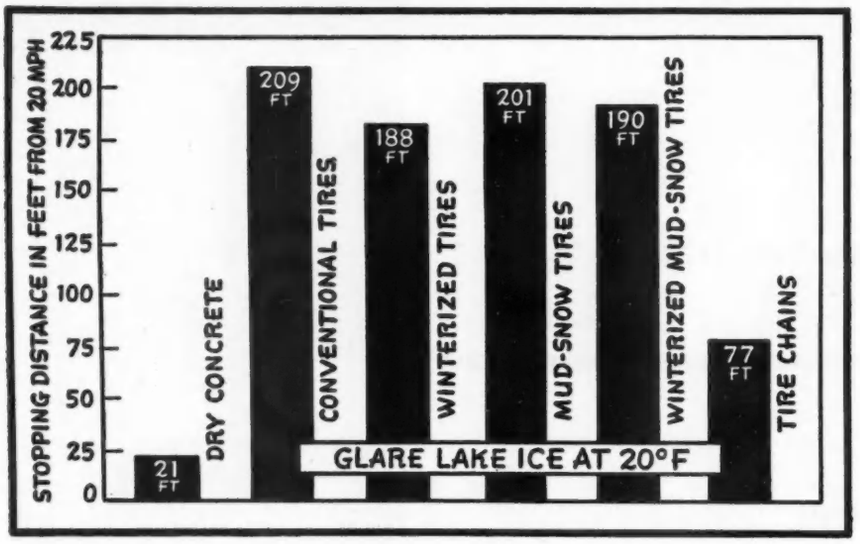
Take an 8-in. C clamp, cut the frame in two and weld in a section to lengthen it by approximately 5 in. Cut off the flat base and weld on a modified base of the shape shown. This should be a piece of 3/16-in. steel notched as shown so that it will fit around the radius arm and still permit the bushing to be pushed through it. The clamp is used in the regular way although an extension to the handle may be necessary for problem jobs.



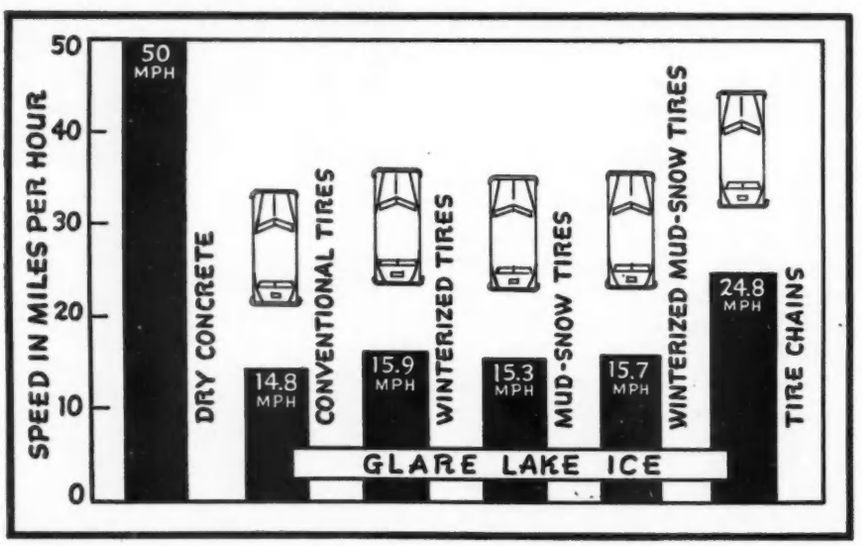






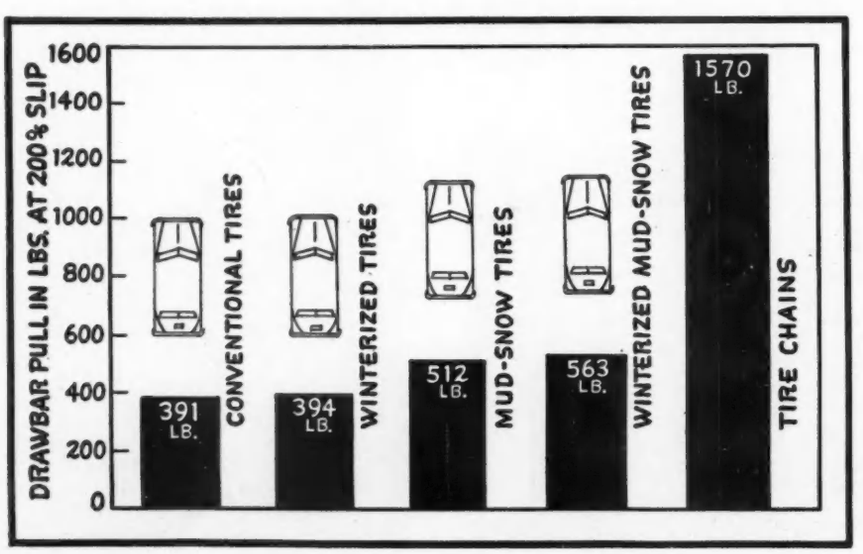


Average stopping distances on glare ice of specialized tires and tire chains, as compared with a conventional tire



Above. Equivalent speeds on glare ice to equal stopping distance from 50 mph on dry concrete. Note variation

Below. Average drawbar pull on loosely packed snow of specialized tires and tire chains compared with regular tires



Winter-iz

National Safety Council ice tests treads show 10% improve-ment

DURING the last few years, a rather wide variety of specialized tires for winter driving has been placed on the market. A number of these are essentially conventional rib-type tires containing minute particles such as salt, sawdust, or other materials embedded in the tread slab, or having fine cuts or lacerations in the tread; these are referred to as the "winterized" group. Others are of a special tread design such as the mud-snow and lug types, which are generally characterized by deep treads, studs, or knobs; this group is called the "mud-snow" group. And several are produced by making fine cuts or lacerations in the tread of lug-type tires; the latter make up the "winterized mud-snow" group.

Because of the variety of such tires, and the conflicting claims made for some of them, motorists have been considerably confused as to the degree of protection offered by these tires on snow and ice. Likewise, a number of state motor vehicle departments have questioned the relative merits of such tires, and have asked whether these tires can take the place of tire chains for severe snow and ice conditions.

Therefore, in order to provide factual information as to the relative merits of such tires, the National Safety Council's Committee on Winter Driving Hazards investigated the skidding and traction characteristics of twenty-two different tire designs during a two-week research program in January, 1950, at Pine Lake, Clintonville, Wisconsin. The tests were

...ized Tire Tests Suggest

CAUTION in Winter Driving

...ests show lacerated treads cut stopping distances 20-30%; imbedded ...ment on lake ice. Mud-snow types are 25% more effective on snow

Test Conclusions

1. The stopping distance with the best specialized tread on ice is still eight times that on dry concrete.

2. Performance of all tires on ice is better at lower temperatures.

3. Lacerated treads cut stopping distances about 20 per cent over conventional natural rubber tires.

4. Tires with material imbedded in tread offer up to 10 per cent overall advantage over conventional natural rubber tires.

5. Mud-snow tires show average improvement of 20 to 30 per cent on loosely packed snow, but are of little benefit on glare ice.

6. Mud-snow tires combined with winterized process show an average improvement of about 25 per cent over regular tires.

7. Premium tire chains are superior to the best tires tested, averaging 46 per cent in stopping ability and 47 per cent in traction ability.

8. Natural rubber is 10 to 50 per cent superior to cold rubber in stopping traction on snow and ice.

9. Best traction on ice is obtained when there is no wheel slippage. Spinning of wheels reduced traction by 50 per cent.

10. The best stability when slowing down and stopping on glare ice is obtained by leaving the clutch engaged and pumping the brakes rapidly.

conducted on glare ice, rough ice, and loosely packed snow on the surface of Pine Lake, and included three basic tests: stopping distance tests to measure ability to stop, tractive effort tests to measure pulling ability, and cornering tests as a measurement of resistance to side skidding. In all, about 1800 individual runs were made.

In order to determine the operating characteristics of these tires under all possible winter driving conditions, it would be desirable to test stopping, traction, and cornering ability on glare ice, packed snow, and deep loose snow. Unfortunately, neither time nor the vagaries of the weather permitted such a complete study. As a result, therefore, stopping distance tests were conducted on glare ice, rough ice, and loosely packed snow; traction tests were conducted on glare ice and loosely packed snow; and cornering tests were conducted on glare ice only.

Fire test vehicles were used: Test vehicle No. 1, equipped with a conventional transmission, Vehicle No. 2, equipped with a fluid coupling, Vehicle No. 3, having a fluid coupling and a locked differential, Vehicle No. 4, equipped with a conventional transmission, Test vehicle No. 5, equipped with an automatic transmission.

In all, 22 different tires were selected and tested.

Insofar as this report in concerned, the winterized group is made up of ten tires including six retreads containing salt, sawdust, peanut shells, steel chips, steel wool, or steel coils embedded in an essentially conventional rib-type tread. Also included with this group are two conventional tires whose treads have been pierced or lacerated through a special process which produces thousands of minute holes in the surface of the tread, and two tires having fine cuts or grooves in the tread. In one of the latter the cuts are transverse in direction, and in the other, they are both transverse and circumferential.

The second group, the mud-snow type, is made up of eight tires having deep treads, studs or lugs. These tires are designed primarily for superior traction in mud and loose snow.

The third group, called the winter-

(TURN TO PAGE 128, PLEASE)

BOTTLERS' BODY

Designed for Pallet Loading

Properly designed delivery bodies can cut delivery costs, their smart appearance is a business asset. Construction in own shop or by body builder possible using standard prefabricated parts

THE SECOND Body-of-the-Month, of this newly inaugurated series, features two designs to perform specific delivery functions in the Bottling Industry. In such an industry, where more than 65,000 trucks are employed to handle a production of over 700 million cases of its product annually, the proper selection of truck equipment is of vital importance.

Also, inasmuch as delivery costs in this industry represent, in many instances, 30 per cent or more of the total operating costs, this phase of the overall operation presents the most likely possibilities of cost reduction. Of course, any savings realized by this cost reduction brought about by the use of the most efficient delivery and handling equipment will be reflected in greater profits.

In creating these designs every effort was extended to create as neat and clean a design as possible, so that all the benefits and prestige of attractive appearance might be realized from a piece of rolling equipment which is constantly in the public eye. Such prestige alone will create a great deal of confidence in a food or beverage producer.

Appearance Features

THE two designs, as you will note, are variations of the otherwise common platform pallet-loading type bodies very much in use today. However, with the use of several available prefabricated sections, an otherwise ugly and unattractive design is transformed into a neat, clean, attractive, streamlined body.

In these two designs, the front and rear streamlined sections are available as prefabricated assemblies, including the doors. The oval rubrails with round corners, and the oval case-bearing slats, also are readily available prefabricated sections.

Operating Features

BOTH designs are set up for pallet loading methods; whether the bodies are used in an operation where pallet deliveries are made directly from producer to retail outlets or whether they are handled from producer to distributor to retail outlet.

The closed design is suggested for a specific delivery problem where paper labels or sales containers must not be exposed to the elements, where they will deteriorate or peel off. This is a common problem confronting beverage distributors every day.

This design provides a six-compartment body, fully enclosed by the use of roll up doors. Four compartments accommodate full bottle loads, and the two compartments over the wheels are provided for empties. All compartments can be made to suit pallet sizes, so that loading and unloading can be quickly accomplished with the small pallet-loading lift trucks.

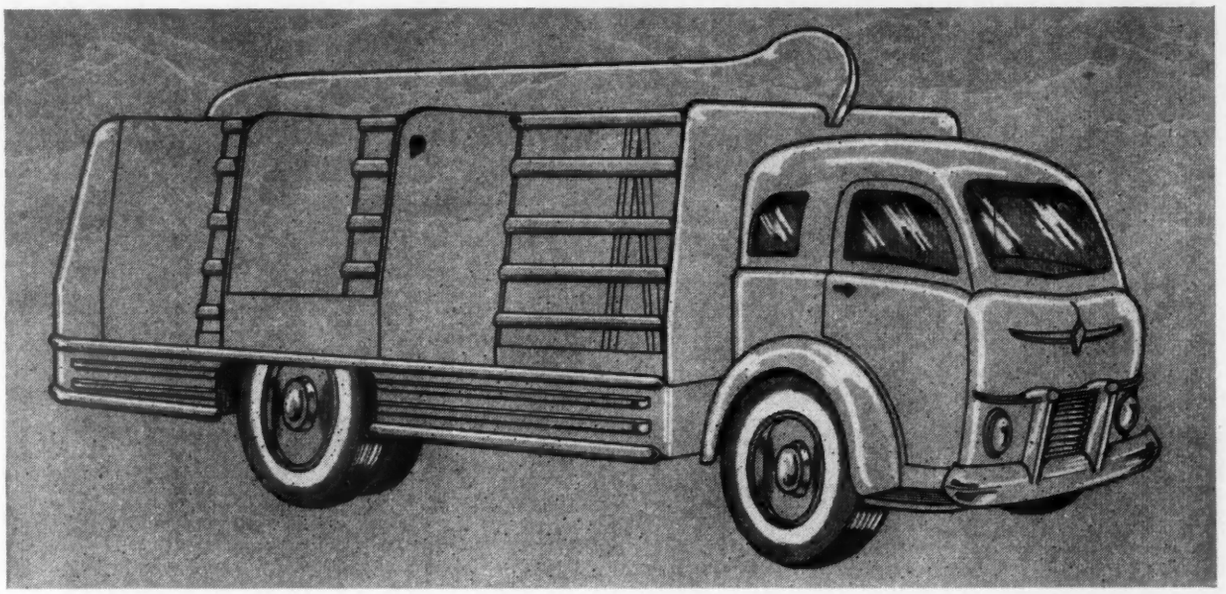
Also, in this closed design, which is primarily a distributor to retail outlet delivery unit, full length steps are provided for ease of unloading at the point of delivery. And, to further ease this always troublesome condition, as low a chassis frame as is possible is suggested to keep loading and unloading heights down.

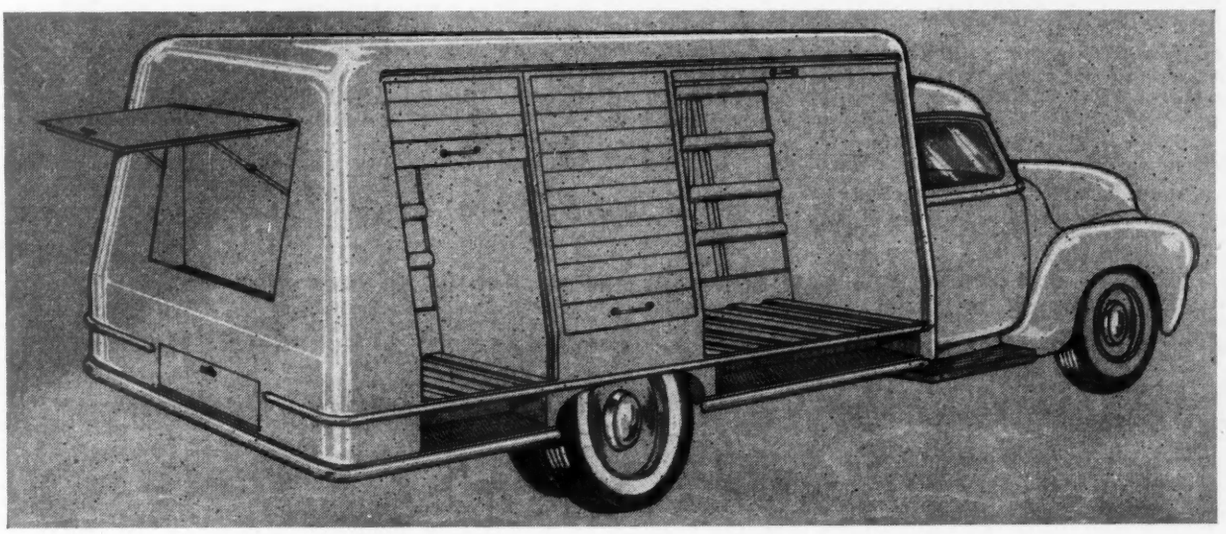
An advertising material compartment is provided in the rear streamlined section, as is a case wheel truck or spare tire compartment in the lower rear panel.

The open body design is, of course, designed to get the most cases pos-

Designed and Copyrighted by

E. M. Westburg





sible delivered from producer to distributor or retail outlet, whichever the case may be, in the least expensive manner possible. In doing this, full advantage also is taken of the time savings of palletized handling.

Design Features

THESE designs, as well as all others which will appear in this series, take full advantage of available prefabricated body parts from many different sources in such a manner that emphasis will be on a custom-type body design rather than one having the appearance of some individual prefabricated body. (Details concerning the parts and their procurement available without cost.—ED.)

Another important consideration which was given to these designs was the use of an absolute minimum number of different parts. This is considered important because it greatlv simplifies purchasing of materials, inventory control and speeds production in the shop by simplifying fabricating and assembly procedures. Further, this eliminates confusion among the workmen, which can occur when many different complicated sections or parts are used. All these factors play a vital part in the total cost of the finished body.

The understructures of both designs are identical and can be any one of a number of conventional prefabricated understructures available. The basic framing may be square tubing, which eliminates fitting and notching at joints, or a very simple, light gage 1x2 channel, which also is available from a number of sources.

The front and rear streamlined sections are available as completely assembled prefabricated units. In the case of the closed body design, they may be connected at the roof with a very simple offset type of roof cove in which straight bows may be dropped, eliminating the need of adjustable bows or separate roof bow brackets. For light weight and maximum strength, corrugated floors are shown which are available as prefabricated sections. The case-bearing

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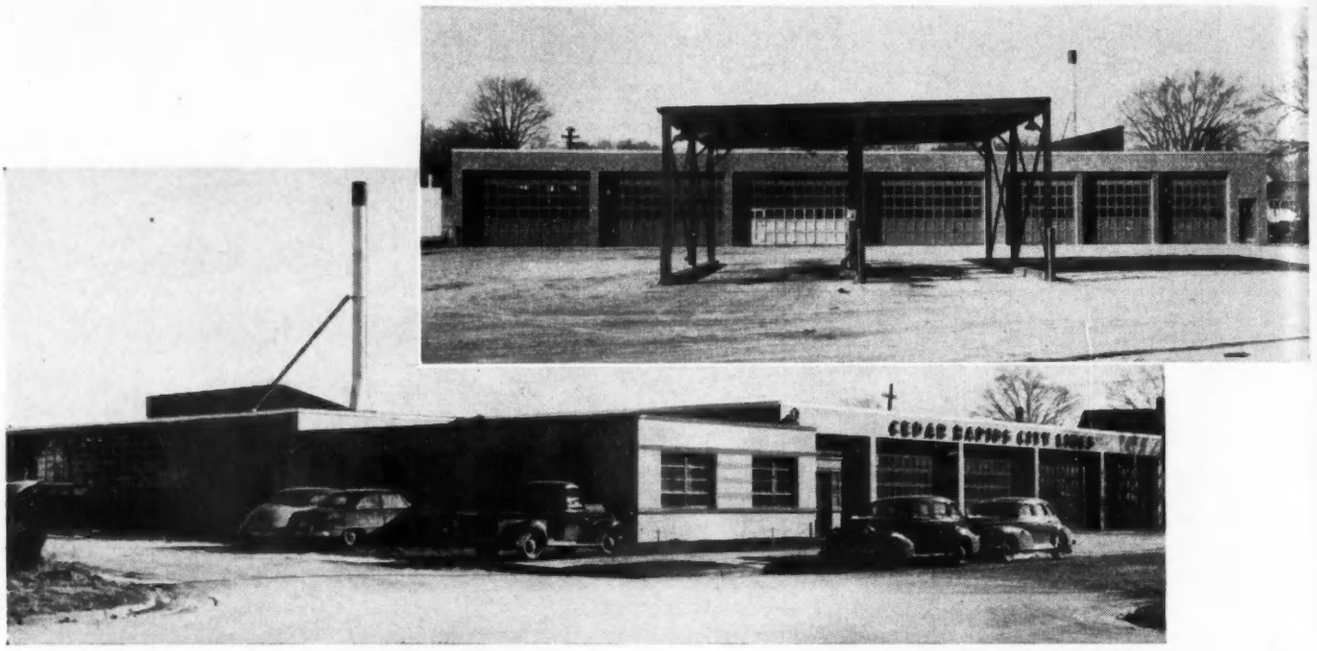

Fig. 1. Exterior of Cedar Rapids City Lines new home. Modern styling makes building asset to community. Office is located in corner section; shop at left to rear; garage, right to rear

Fig. 2. This is the yard area, located at rear of the building. It measures 135 x 170 ft, same as building. Gas island which can handle two buses at a time, consists of two pumps under shelter

Bus property's new building, first occupied a year ago, has many interesting features which experience proved beneficial. Heating system, especially, gets praise from personnel for its advantages

by A. W. Greene Managing Editor, Commercial Car Journal

Cedar Rapids' Radiant Heating

ONE YEAR AGO, Cedar Rapids City Lines, a National City property, moved into a brand new building. It was attractive, and contained many modern architectural design features.

When the building was occupied, advantages of most design features became apparent at once. There was one exception—radiant heating. With the approach of cold weather, absence of customary heating units—such as radiators, blowers or hot-air registers—was not too reassuring. Most of the personnel had no experience with radiant heating. Only indirectly had they heard that it was satisfactory.

A year later, it can be said that all special design features have proved highly practical and satisfactory. Nobody has any suggestions to change this or that. And, of all features, the heating system gets the highest praise.

Near Central Location

THE building is located relatively close to the center of traffic movements. Not only does this provide excellent control of equipment with respect to transit requirements, but it also reduces dead-head mileage to a minimum.

The exterior design is clean cut and modern. No building in the immediate vicinity is comparable; hence, it is regarded as an asset to the immediate community.

The building is constructed of masonry and steel with face brick on the street side and exposed painted steel work on the interior. It is a one-story structure, 135 x 170 ft, with a

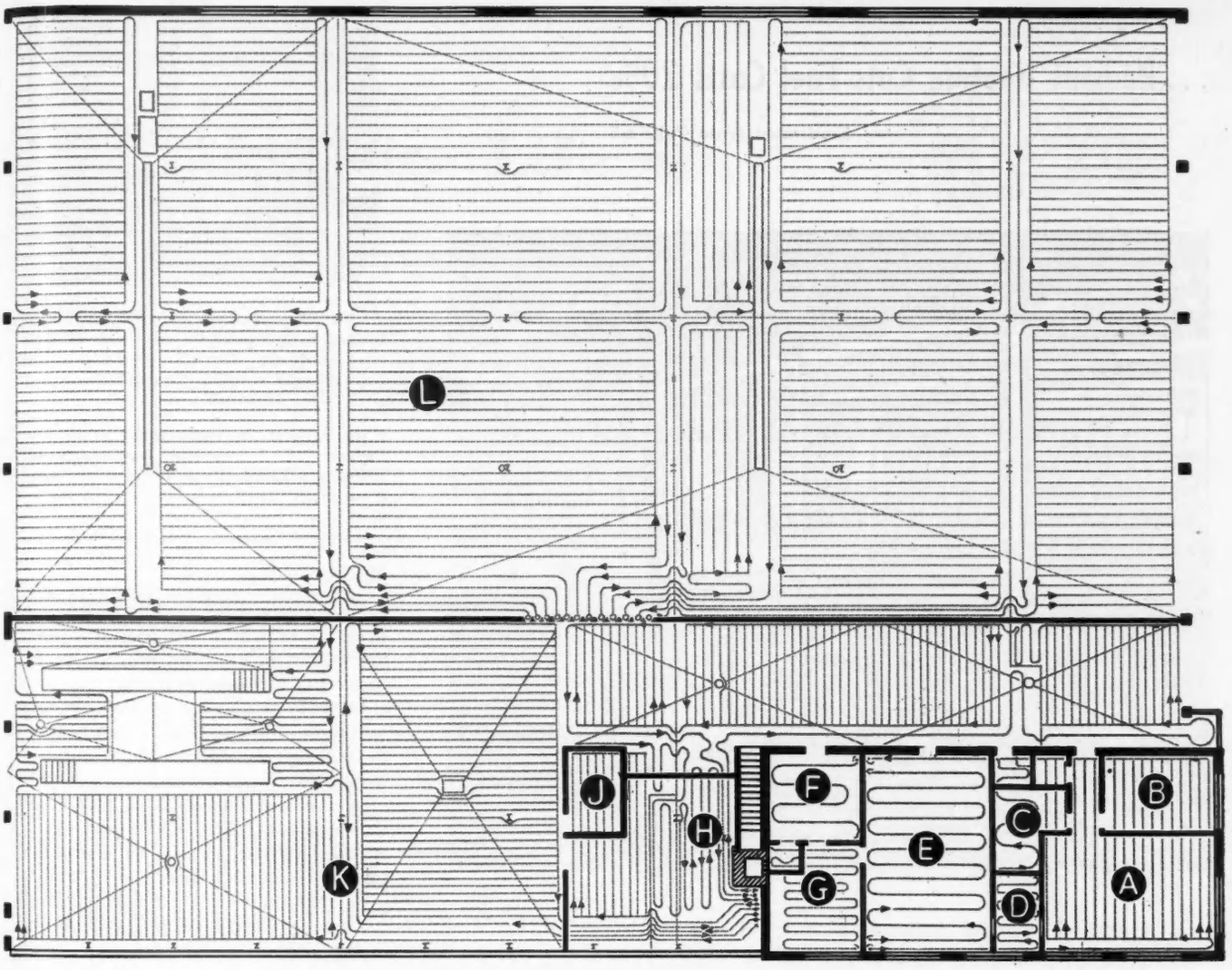

Fig. 3. Combination of floor plan and piping layout (fine lines) shows departments and heating arrangement. A, B, C and D are general offices; E, F and G, lockers and toilets; H, stockroom; J, shop office; K, shop; L, garage

g Cuts Fuel Costs 20%

basement large enough for the oil-fired boiler and a limited amount of storage. A yard area, as large as the building itself, is located in the rear.

Layout Compact and Efficient

COMPACTNESS and efficiency keynote the general layout. As shown in the floor plan, Fig. 1, the general offices are located at A, B and C. D is the cashier's office which is adjacent to the driver's locker room, E. The mechanic's locker room is located at F. In addition to lockers, the mechanic's room contains a Bradley wash fountain and shower. This room connects to a sizable toilet room, G, which contains lavatories, and also is used by the drivers.

The office area and drivers' and mechanics' locker rooms have asphalt tile floors. Metal pan acoustical tile has been used extensively on the ceiling for elimination of noise. Recess troffers have been used for lighting the general office area.

Adjacent to the locker rooms is the parts stock room, H, and the maintenance superintendent's office, J. Spare tires are stored in an area behind the superintendent's office and adjacent to the stock room.

Advantage was taken of the orientation of the site to locate the repair shop area, with its grease racks, on the north side. This north side is almost entirely of glass above the table area. It is equipped with underground monoxide vents to pick up the exhaust gases and expel them through the roof.

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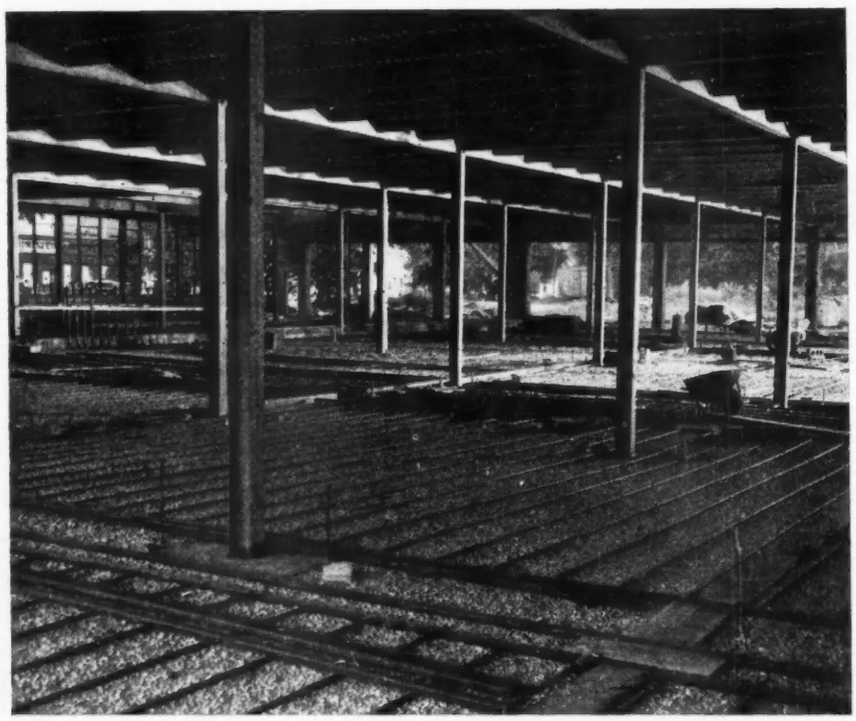
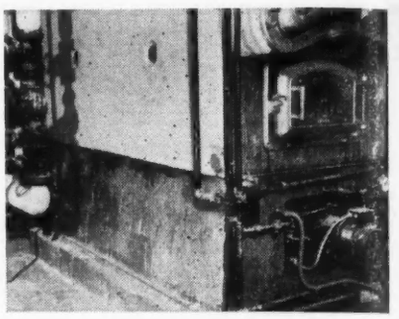
. . . Radiant Heating Cuts Fuel Costs 20%

Continued from Page 65





This is the oil-fired, automatically controlled boiler used in the Cedar Rapids new building. Despite its small size, heat output is very satisfactory.

This is what the radiation looked like before the concrete was poured. There's 20,000 ft of welded wrought iron pipe.

The general maintenance area is shown at K. The portion of the roof between the storage and shop area was raised to include a glazed wall that floods the interior of the repair shop with an abundance of natural light. For artificial light, exposed troffers are used.

Unit rebuilding is handled in the area adjacent to the superintendent's office and the parts room. At the far end of the room there are two pits connected by an underground passage where general maintenance, inspection and lubrications are handled. Adjacent to the pits is an open area where two buses can be accommodated for major repairs.

Bus storage area is shown at L. This area is separated from the maintenance department by a metal partition. Incandescent lights are used on the ceiling.

Large overhead doors are located at the front and rear of the building. They are generously glazed, provide a maximum of natural light. At the rear of the building is the gasing area in the spacious yard, as shown in Fig. 2. Essentially, it is a sheltered island and accommodates two buses at a time.

Traffic flow is simple and efficient. The buses drive in from the rear, pass to the gas station, and enter the garage through a large wash area. From here, they proceed to the proper location for parking. All out-going buses leave through the front doors. This gives us one-way travel at all times.

The layout of the garage provides placement of four buses in each bay. No aisle space is needed or provided. Their proximity to the front and rear doors provides easy access, and exit in case of fire. At no time, is it necessary to move more than one bus to get out of the garage.

Future expansion has not been overlooked in the layout of any department. There are 41 buses on the property today but a dozen more could be efficiently accommodated, without structural additions.

Radiant Heating Throughout

OF ALL the modern features that are incorporated into this building, perhaps the one that is giving the greatest satisfaction is the heating system. As mentioned, the heating plant, the heart of which is the Kewanee automatically-controlled oil-fired boiler, is located in a small basement.

Instead of the customary exposed radiation, the floor panel type of radiation, commonly called radiant heating, is employed. All heating pipes are imbedded in the concrete floor. This heats the concrete slab. The heated slab, in turn, throws off heat to warm the various rooms and areas.

Fig. 3 shows how the heating piping was arranged and layed under the floors in the general bus storage area. The fine lines on the floor plan, Fig. 1, show the piping layout for the entire building.

There is approximataly 20,000 ft. of wrought iron pipe incorporated in this heating plant, most of it being 1 in. All joints in the piping were welded and tested under hydraulic pressure of 350 lb per sq in.; or a safety factor of 17.

Two 10,000-gal oil storage tanks are buried in the ground in the yard at the rear of the building. They can be filled by tank car as the yard is adjacent to a railroad spur, or by tank truck. Incidentally, the location of properties near some railroad facility is one of the basic requirements of all new construction of National City properties. This permits purchase of fuel oil in tank car lots.

The operation of this heating system is simple and thoroughly automatic. Hot water is forced to the various pipe coils by two 3-in. circulating pumps. The water entering the coils never exceeds 130 deg.

Room temperature is controlled by the various three-way Minneapolis-Honeywell control valves. These, in

(TURN TO PAGE 124, PLEASE)

Average Life of Windshield Wiper is 21,215 Miles

FLEET OPERATORS' EXPERIENCE HANDBOOK

SURVEY NO. 20

Part 2

Some fleets report as few as 3000 miles, others as many as 70,000 for wiper blades. Wiper motors give approximately 147% more life. Current study also covers speedometer-odometers and tachometers

Analysis **by A. W. GREENE,** *Managing Editor, Commercial Car Journal*

WINDSHIELD WIPER BLADES give approximately 21,000 miles service, according to data received from CCJ's Board of Experts. Some of these experts report that the average performance of this part is as low as 3000 or 5000 miles, as shown in Table 1.

Vocationally, public utility fleets report the lowest group average, which is 15,857 miles. The petroleum industry fleets show the highest group average, with 34,500 miles as their average.

For the life of a windshield wiper motor, these fleets report a range of mileages from 8000 to 150,000 miles, as shown in the same table. The average for all fleets reporting is 52,522 miles.

It is interesting to note that the petroleum industry fleets also report the highest group average for this part. The lowest group average, 36,000 miles, is reported by the retail delivery fleets.

Air Horns Average 141,710 Miles

THE life of horns also is shown in Table 1. Air horns seem to have an appreciably longer life than electric horns. The national average for air horns is 141,710 miles, while 82,374 miles is the reported average for electric horns.

Lack of adequate space made is impossible to note in the table that whereas all fleets reported on electric horns, only 25 per cent of those fleets reported experience with air horns.

21,215 Miles

What Is The Average Life Of Electric Horns?

Table 1

Fleet maintenance men cooperating in this study report as few as 10,000 and as many as 500,000 miles, but the national average life is 82,374

VOCATIONAL GROUPS	Number of Fleets Reporting	WINDSHIELD WIPER BLADE Mileage Range (Last 000 Omitted)	WINDSHIELD WIPER BLADE Mileage Average	WINDSHIELD WIPER MOTOR Mileage Range (Last 000 Omitted)	WINDSHIELD WIPER MOTOR Mileage Average	ELECTRIC HORN Mileage Range (Last 000 Omitted)	ELECTRIC HORN Mileage Average	AIR HORN Mileage Range (Last 000 Omitted)	AIR HORN Mileage Average
FOR-HIRE CARRIERS	18	9 - 55	27,167	25 - 125	76,944	25 - 500	114,889	100 - 500	217,857
FOOD DISTRIBUTION	29	7 - 50	22,481	8 - 150	48,222	20 - 200	79,682	100 - 500	207,600
GOVERNMENT	25	3 - 40	16,640	10 - 125	43,600	18 - 190	56,652	30 - 200	80,714
CONSTRUCTION AND MINING	4	20 - 30	26,250	30 - 100	60,000	30 - 100	60,000	100	100,000
INDUSTRIAL	5	3 - 70	25,250	10 - 100	60,400	10 - 130	80,000	.....	.....
PETROLEUM	6	25 - 42	34,500	50 - 125	79,167	60 - 150	96,250	75 - 250	166,250
PUBLIC UTILITY	15	5 - 30	15,857	15 - 80	48,571	15 - 150	76,154	100	100,000
RETAIL DELIVERY	17	5 - 45	17,059	10 - 100	36,000	30 - 150	89,286	30 - 50	45,000
TRUCK RENTAL	4	5 - 30	17,500	15 - 75	45,000	75 - 100	91,250	50	50,000
TRUCK AND BUS FLEETS, MIXED	3	15 - 45	30,000	25 - 65.6	45,300	50 - 450	250,000	.....	.....
TOTAL AND AVERAGE ALL VOCATIONAL GROUPS	126	3 - 70	21,215	8 - 150	52,522	10 - 500	82,374	30 - 500	141,710

While electric horn users report the lowest individual fleet mileages and overall average, a maximum of 500,000 miles has been reported for both types of horns. The high in the range of every vocation reporting on electric horns shows at least 100,000 miles. One group average (petroleum industry) shows almost 100,000 miles, For-Hire Carrier Fleets show better than 100,000 miles, and the bus fleets report 250,000 as their average.

It is not intended that the life averages of electric and air horns should be compared directly. To make such a comparison it would have been necessary to select data for comparable type of service. Furthermore, electric horns in city service often get more use in one day's time than air horns get in two or three days—perhaps even a week. Thus, the life of the two types of horns should be considered separately.

Speedometer-Odometer Life

FOR the purpose of this study, the speedometer and odometer combination was taken as a unit, as shown in Table 2. Where tachometers are used, their performance is compared in a separate column in the same table. As in the case of horns, not all fleets reporting on speedometers-odometers also supply mileage on tachometers. Only about one-third of the reporting fleets supplied data on tachometer.

The range of mileages reported for the speedometer-odometer head varies from 10,000 to 300,000 miles. The national average is 85,640 miles. Public utility fleets show lowest vocational average—67,308 miles. Bus operators show an average of 175,000 miles. Two other vocational groups also show more than 100,000 miles.

As for tachometers, the range of reported mileages is greater—5,000 to 500,000 miles. The government fleets show the lowest vocational average for this part. The petroleum fleets show the highest group average, with 148,750 miles. As in the case of the speedometer-odometer heads, two other vocational groups also show better than 100,000 miles average for the tachometer head.

There is only approximately 5,000 miles difference between the two heads. The national average for the speedometer-odometer combination is 85,640 miles, while the life of the tachometer heads averages 90,711 miles.

For the purpose of this study, cables for both the speedometer-odometer and tachometer heads were combined. The range of mileages reported varies from 7,500 to 200,000 miles. The national average is 51,895 miles. Vocationally, the petroleum fleets also lead in the group average reported. The low of the group averages is reported by the retail delivery fleets, which, surprisingly, show a higher than national average mileage for both the speedometer-odometer and the tachometer head.

85,640 Miles

Speedometer-Odometer And Tach Life Run Close

Table 2

Only about 5000 miles difference reported by fleetmen on the life of these parts. Cables for these parts run approximately 40% less

VOCATIONAL GROUPS	Number of Fleets Reporting	SPEEDOMETER-ODOMETER HEAD Mileage Range (Last 000 Omitted)	SPEEDOMETER-ODOMETER HEAD Mileage Average	TACHOMETER HEAD Mileage Range (Last 000 Omitted)	TACHOMETER HEAD Mileage Average	CABLES (Speedometer, Odometer, Tachometer) Mileage Range (Last 000 Omitted)	CABLES (Speedometer, Odometer, Tachometer) Mileage Average
FOR-HIRE CARRIERS	17	30 – 175	83,235	20 – 500	114,444	30 – 200	65,000
FOOD DISTRIBUTION	26	20 – 300	83,000	20 – 300	84,700	25 – 100	50,650
GOVERNMENT	24	15 – 200	74,783	5 – 100	49,375	7.5 – 75	42,474
CONSTRUCTION AND MINING	4	60 – 100	81,250	60 – 100	80,000	30 – 80	55,000
INDUSTRIAL	5	10 – 150	86,000	75 – 100	83,333	10 – 80	51,000
PETROLEUM	6	50 – 250	128,500	95 – 250	148,750	50 – 115	76,000
PUBLIC UTILITY	14	20 – 150	67,308	50 – 75	62,500	20 – 75	50,556
RETAIL DELIVERY	16	30 – 200	101,667	50 – 200	93,750	20 – 50	35,833
TRUCK RENTAL	4	50 – 100	81,250	75 – 150	112,500	35 – 100	65,000
TRUCK AND BUS FLEETS, MIXED	2	50 – 300	175,000	.....	.....	70	70,000
TOTAL AND AVERAGE ALL VOCATIONAL GROUPS	118	10 – 300	85,640	5 – 500	90,711	7.5 – 200	51,895

Composition of Vocational Groups as Used in the Accompanying Tables

FOR-HIRE CARRIERS—Motor Freight Carriers in Local and Over-the-Road service.
FOOD DISTRIBUTION—Bakery, Dairy, and Other Food Products fleets.
GOVERNMENT—State, County, Municipal, and Federal fleets.
CONSTRUCTION AND MINING—Building, Mine, Quarry, and Gravel fleets.
INDUSTRIAL—Fleets operated by manufacturers.
PETROLEUM—Production and Distribution fleets.
PUBLIC UTILITY—Gas, Power, Water, and Telephone fleets.
RETAIL DELIVERY—(Other than Food Products), Dry Cleaning, Laundry, Newspaper, Coal, Ice, Department Store, Beverage fleets.
TRUCK RENTAL—Agencies leasing motor trucks.
TRUCK AND BUS FLEETS, MIXED—Passenger carriers operating own truck fleets.

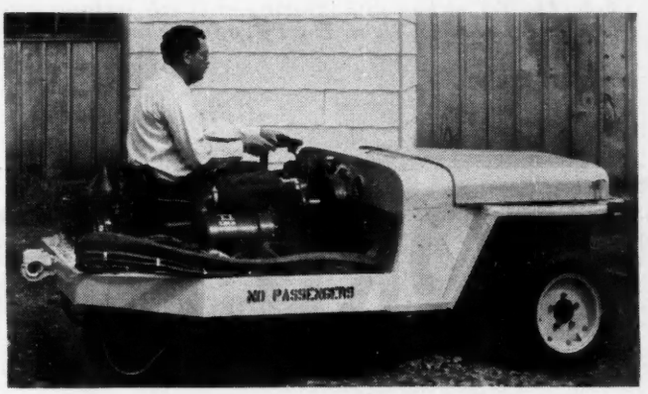
PICKED pix
OF INTEREST TO FLEETS

Mack Buses Come Prepared

▲ New Mack bus can be converted to emergency ambulance—In a matter of minutes in case of wartime emergency, stretchers like these can be slung over the seats of this new Mack "Bus of Tomorrow." This civilian protective feature was incorporated in the bus in the interest of public safety under the guidance of Col. Sidney H. Bingham, chairman of the New York City Board of Transportation. New York now has 400 of this new-type bus on order

The Old And The New

▼ A baby born when RCA Victor Div. of Radio Corp. of America installed its original fleet of automatic trailers would be eligible to vote today. This fleet of almost a score of Trailmobiles of an earlier day looks antiquated when lined up alongside a fleet of modern, shining aluminum and steel trailers of the same make, but the ancient vehicles are still on the job and doing a full day's work



Modern Checker Upper

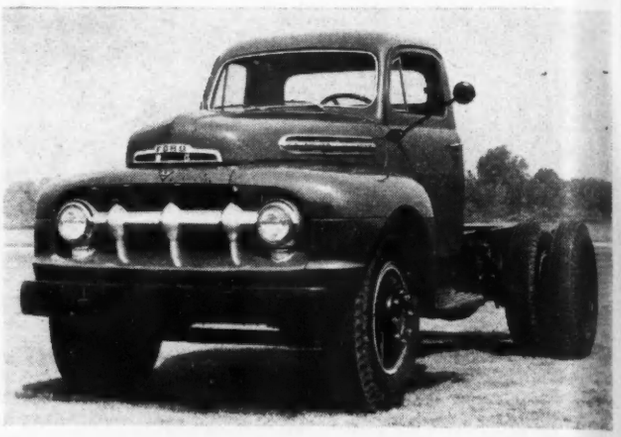
▲ A lightweight, low slung, three-wheeled Jeep is being produced by a Philadelphia engineering firm as a mobile power plant to energize U. S. Navy jet fighters as well as land-based military planes of various types. The tricycle geared Jeep is the outgrowth of a government contract awarded five years ago to O. E. Szekely and Associates, Philadelphia, for the development of special equipment to start the engines of military aircraft

Tester Rings The Bell

◀ No springs, no clock, nothing to get out of order is the claim for this driver reaction time test developed by O. D. "Mike" Shipley, safety director of the Pennsylvania Motor Truck Association. A plastic ball (arrow) dropped from the 6 ft 3 in. shelf takes 5/8 sec to reach the floor. If the driver being tested moves his foot to the brake pedal fast enough the ball will strike his foot. But if he is slow, the ball will ring a bell

Autocar, Vintage 1898

▼ Fifty-two years separate these two Autocars brought together for Pennsylvania Week to illustrate the development of the automotive industry in the state. The old automobile is an 1898 Autocar phaeton, the second vehicle (the first was a tricycle model) made by The Autocar Co.



Left. The F-1 pickup with "5-star extra" cab features redesigned grille and enlarged rear window. Right. The F-8, offering improved comfort and performance

FORD FOR '51

Stresses Operating Economy

Automatic carburetor-ignition control, chrome top piston rings, autothermic expansion control pistons and high-lift camshafts are featured

STYLE-WISE the 1951 Ford truck line is offering a newly designed front end with headlights, turn signals and radiator grill deeply inset into the front fenders. However, from the fleetman's point of view mechanical changes effecting economy and maintenance may be of prime importance.

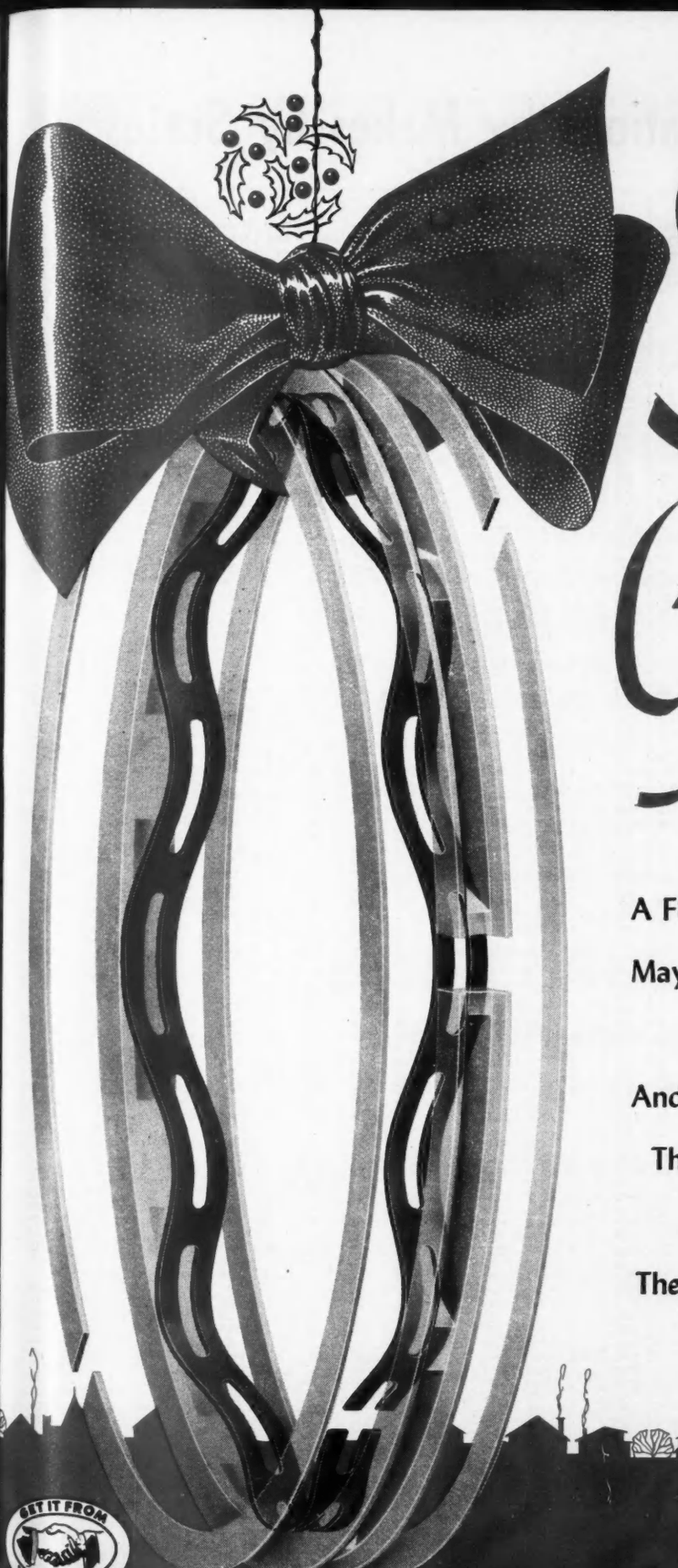
The entire line features automatic power pilot carburetion-ignition control on all engines, providing power with economy by metering and firing the correct amount of fuel at the right instant under varying loads and without spark knock.

Engines have been improved to reduce operating costs and to make them quieter. All now have chrome piston rings, autothermic expansion control pistons and new high-lift camshafts. Offset piston pins are now used on the 95-hp. six and the 100 hp. eight engines to insure quiet operation. Exhaust valve stems on all engines are nitrided to help prevent valve sticking. New semi-rotating valves and valve spring retainers also help prevent valve sticking and prolong valve life. On F-7 and F-8 trucks, coolant distribution is improved by means of a larger radiator tank and water by-pass tubes on the engine.

Distribution of braking force on F-4, F-5 and F-6 trucks has been modified to obtain better balanced braking and longer lining life. The clutch disc on F-7 and F-8 models has been redesigned for more rugged service. Cast spoke wheels with demountable rims to provide interchangeability with trailer wheels are now standard equipment on the two largest models, but steel disc wheels are still available.

The standard three-speed transmission for the F-1 has been redesigned for more rugged loads, longer wear and easy shifting. It has constant mesh helical gears with synchronizers in second and third speeds. A steering column gearshift on F-1 light duty models provides more cab and floor space. Performance of this model has been improved by changing the rear axle ratio from 3.73 to 1 to 3.92 to 1.

The new "5-Star Extra" cab, available as optional equipment, is soundproofed and insulated with undercoating and glass wool. The full-width seat has a foam rubber pad on the cushion. Two sun visors, lighter, glove compartment and dome lamp with automatic door switches characterize the cab. A new instrument panel incorporates new full-vision instruments, rheostat-type instrument light switch and hand throttle. Dual windshield wipers are standard equipment. The rear window has been redesigned and enlarged to more than three and one half feet for full range vision.



Season's Greetings

A FULL FLOW of holiday spirit!
A FULL FLOW of brightness and cheer!
May FULL FLOW, wherever you hear it,
Help RING in a bountiful year!
And, speaking of RINGS, there's a nifty,
That dealers from coast to coast sing—
It's called the Sealed Power MD-50;
The ring with the FULL-FLOW SPRING!

GET IT FROM YOUR JOBBER

SEALED POWER CORPORATION, MUSKEGON, MICHIGAN

Sealed Power Piston Rings

BEST IN NEW TRUCKS BEST IN OLD TRUCKS

New Truck Registrations by Makes by States*

STATE		Auto-car	Brock-way	Chev-rolet	Dia-mond T	Divco	Dodge	Fed-eral	Ford	FWD	GMC	Inter-na-tional	Ken-worth	Mack	Pon-tiac	Reo	Ster-ling	Stude-baker	White	Willys	All Others	Tota
Alabama	Sept.	1		621	5		132		468		109	105		9	1	3		32	16	31	2	1,535
	9 Mos.	5		7127	18	16	1233	4	5476		1551	1329		136	13	16		759	160	344	12	18,199
Arizona	Sept.			242			52		164		60	42	1	3	2			33	2	28		629
	9 Mos.			1879	6	11	385	6	1493	2	557	382	7	13	5	6	3	282	22	221	11	5,289
Arkansas	Sept.			1138	6		224		820	1	304	298		4		16		120	20	54	3	3,008
	9 Mos.			7123	24	2	1456	2	5184	1	1723	1300		33	21	32		938	45	345	8	18,237
California	Sept.	16	2	3249	54	67	1007	2	2463	2	1030	853	23	36	7	30	6	476	104	244	53	9,724
	9 Mos.	96	8	19479	267	380	4006	22	13485	33	5052	3583	148	202	45	99	64	2456	338	1015	235	51,013
Colorado	Sept.			482	3	4	95	1	319	1	103	123	4	10		3		61	5	31	13	1,258
	9 Mos.			4911	36	43	800	9	2902	5	919	1076	21	36	5	21		617	40	400	43	11,884
Connecticut	Sept.	3	4	251	6	14	85	1	140		52	76		21		7		33	6	44	4	747
	9 Mos.	31	46	2234	68	91	602	59	1728	2	518	685		168	19	33	9	292	104	209	21	6,919
Delaware	Sept.		1	122			20		89		12	15		1		1		9		5		275
	9 Mos.	10	9	926	15	4	176		727		165	245		7	6	4		78	19	39	11	2,443
Dist. of Col.	Sept.	3		120		7	21	1	65		39	25		1		4		2	10	2		300
	9 Mos.	12	4	872	14	49	174	10	551		197	199		27	8	16		30	22	34	4	2,223
Florida	Sept.	6		812	12	16	305		683		175	181		43	1	27		122	27	119	13	2,542
	9 Mos.	8	2	6350	96	59	1666	10	5548		1152	1238		251	19	83		1132	152	737	57	18,560
Georgia	Sept.		1	1276	1	2	290		890		171	170		16		8		137	29	35	3	3,029
	9 Mos.	2	3	10184	39	24	2261	30	8681	1	1911	2079	1	168	13	83	1	1361	221	370	19	27,452
Idaho	Sept.			420	17	2	87	2	200	1	165	122	2	8		4		63	10	65		1,168
	9 Mos.			2304	55	4	400	11	1436	3	802	668	47	23	4	26		356	36	367	15	6,557
Illinois	Sept.	7	1	1914	75	18	518	4	1231		299	721		37	2	16		157	69	79	12	5,160
	9 Mos.	65	6	14097	446	135	3252	23	9964	6	2637	4551		227	57	107	4	1439	461	462	71	38,010
Indiana	Sept.	9		919	6	11	232	10	940		147	350		12	1	11		152	41	57	7	2,905
	9 Mos.	15	2	7173	86	73	1592	25	6265	2	1377	2599		62	25	69		1227	303	324	43	21,262
Iowa	Sept.			722	9	3	183	1	760		112	286		6		3		81	18	38	2	2,224
	9 Mos.	2		8335	97	43	1583	2	6360		1161	2702		65	18	44		809	132	249	13	21,615
Kansas	Sept.			837	4	1	159		514		133	230		5		4		59	9	56		2,011
	9 Mos.			6618	45	21	959	6	4654	1	1313	1950		18	28	46		599	65	247	5	16,585
Kentucky	Sept.			691	3	2	179		535		113	159		2	2	2		53	5	67		1,813
	9 Mos.	4		7521	65	39	1226	13	5321		1910	1768		26	31	22	1	685	71	627	6	19,336
Louisiana	Sept.			604	7		128		507		155	138		8	1	2		79	11	45	1	1,686
	9 Mos.	7		5957	44	4	1143	3	5130	1	1609	1172		29	15	16		885	74	340	17	16,446
Maine	Sept.	2	4	243		1	70	2	164		78	79		5				23	13	19		703
	9 Mos.	11	17	2081	7	5	484	11	1208		643	714		70	16	9	1	267	39	184	5	5,772
Maryland	Sept.	3	6	346	1	4	107	4	305		54	105		5		7	2	22	18	13		1,002
	9 Mos.	16	61	3520	41	74	887	50	2683	1	605	940		109	10	42	2	266	129	103	10	9,549
Massachusetts	Sept.	16	22	478	26	15	208	2	363		127	178		36	4	13	12	74	36	30	2	1,642
	9 Mos.	184	121	4366	150	131	1484	33	3313		968	1385		309	59	95	68	654	301	232	15	13,868
Michigan	Sept.	2		1584	20	49	499	15	1942		246	295		26	5	34		113	24	44		4,898
	9 Mos.	20	1	13669	106	222	2770	106	12323	2	2260	2317		185	26	196		882	207	307	23	35,622
Minnesota	Sept.	1		854	15	21	269		841	2	149	326	2	3		6		180	13	47	2	2,731
	9 Mos.	4		7460	93	94	1527	14	5905	12	1275	2605	35	75	28	28		1323	105	266	35	20,884
Mississippi	Sept.			652		1	112		466		159	134		1	2			60	4	25		1,616
	9 Mos.	1		6165	10	1	1069	4	4391	1	1796	1172		27	18	10		725	53	239	8	15,690
Missouri	Sept.	1		1973	12	19	381		981		462	443		16	1	17		153	58	73	2	4,592
	9 Mos.	6		11527	50	71	1892	2	6940	2	2401	2269	3	104	19	60		1036	238	342	36	26,998
Montana	Sept.			380	7		61		263		83	158	3	1		5		64	1	68	1	1,095
	9 Mos.			2865	37	1	507	10	1773	3	616	964	20	6	6	33		418	15	548	9	7,831
Nebraska	Sept.			608	25	4	96		474		118	186	10	1		2		56	8	38		1,626
	9 Mos.			5321	167	16	780	3	4045	8	1054	1653	30	19	11	24		568	76	364	13	14,152
Nevada	Sept.			59			19		45		24	14						10		13	3	187
	9 Mos.			492	3		92		332		218	88			3			74	2	87	4	1,395
New Hampshire	Sept.		1	70	1	1	23		43		27	25		4		6		14	3	9		227
	9 Mos.	12	8	928	14	10	368	3	667		283	331		73	6	35		135	17	93	2	2,985
New Jersey	Sept.	10	30	768	14	17	241	4	729		202	258		56	3	8	1	83	45	68	3	2,540
	9 Mos.	140	227	7034	199	194	1792	53	5399	16	1851	1996		436	97	60	12	654	378	446	26	21,010
New Mexico	Sept.			243		1	33		107		66	52		4				35	1	16	1	559
	9 Mos.	1		2907	2	1	408	9	1411	2	733	383	4	32	3	1		410	16	170	14	6,507
New York	Sept.	20	72	1347	76	20	844	10	969	2	323	531		100	2	69	6	126	104	91	15	4,527
	9 Mos.	380	585	14059	667	262	5059	184	9408	39	3737	4862	1	1228	96	360	47	1451	869	952	243	44,489
North Carolina	Sept.	4		1030		3	290		913		196	278		46	1	5		120	27	48	34	2,995
	9 Mos.	59	4	8792	29	49	1710	15	7270		1600	1837		457	23	24	4	1040	229	310	155	23,607
North Dakota	Sept.			244	3	1	59	3	301		75	121		1				33		21	1	863
	9 Mos.			2003	22	3	384	5	1766		389	947		8	2	1		280	1	179	7	5,997
Ohio	Sept.	8	1	1606	13	38	444	11	1543		308	439		36		26		129	130	57	1	4,790
	9 Mos.	68	10	14293	285	309	3212	81	11716	7	2909	4497		440	99	194		1355	930	520	19	40,964
Oklahoma	Sept.			939	2	1	209		789	1	147	288		1		5		56	30	57		2,525
	9 Mos.	1		7782	13	45	1497		5878	12	1717	1722		37	16	45		806	180	327	12	20,090
Oregon	Sept.	2		685	9	9	207	2	419	1	239	232	8	31	3	4	1	64	23	102	11	2,032
	9 Mos.	16		3629	69	26	823	6	2713	5	1156	1155	33	106	3	12	4	425	62	530	54	10,827
Pennsylvania	Sept.	12	47	1319	22	4	632	7	1105		379	553		34	2	41	3	147	106	129	8	4,550
	9 Mos.	142	432	14820	308	103	4473	87	11633	3	3500	4974		592	119	343	26	1553	878	831	81	44,898
Rhode Island	Sept.	6		84	3	5	39		66		12	33		3				6	8	3		268
	9 Mos.	51	5	875	20	48	344	1	824		173	334		65	12	17	4	114	49	81	3	3,020
South Carolina	Sept.			479		2	137		285		85	57		12		1		41	3	16		1,118
	9 Mos.	6		4282	5	17	839	1	3118	4	969	613		105	12	6		465	75	122	12	10,651
South Dakota	Sept.			172	2		61		188		52	111	6			1		32	2	37	1	665
	9 Mos.			1916	65	5	424	2	1497	3	375	917	18	2	8	8		266	14	281	10	5,811
Tennessee	Sept.			906	11	7	304	4	682		262	189		13		1		85	30	36		2,530
	9 Mos.	12	2	9909	84	38	2579	23	7147	3	2856	2305	2	184	19	42	2	1408	291	473	26	27,405
Texas	Sept.	10		5592	31	28	1181		4002	1	1467	1407	6	44	10	17		534	118	282	3	14,733
	9 Mos.	58	1	29397	158	98	5741	23	22333	2	7703	5892	17	233	63	81		3424	532	1381	49	77,186
Utah	Sept.			207	5		29		161		91	46		4	1	3		24	3	23	2	599
	9 Mos.			1946	54	8	264	3	1120	2	548	481	16	28	10	15		165	28	145	30	4,843
Vermont	Sept.		1	66			18	1	28		26	39						5	2	24	1	211
	9 Mos.	1	10	762	1	3	271	1	420		287	330		17	1	9		90	6	163	13	2,385
Virginia	Sept.	3	2	815	6	14	214	1	648		121	210		42		5		59	14	58	5	2,217
	9 Mos.	42	22	7313	24	52	1516	20	5563	1	1505	1501		174	12	30		746	169	342	38	19,070
Washington	Sept.	1		375	4	7	120	3	272		129	143	14	23		5	2	43	5	47	5	1,198
	9 Mos.	3		4162	44	53	935	3	2651		1086	1272	50	103	18	25	5	447	51	395	64	11,367
West Virginia	Sept.	1		311		2	101	1	246	1	78	80		3		2		32	10	44		892
	9 Mos.	4	13	3100	11	21	783	11	2468	3	764	619		55	15	18		289	50	541	6	8,771
Wisconsin	Sept.	2		912	16	17	222	1	701	2	185	414		1	2	16	1	108	21	49	1	2,671
	9 Mos.	8		6645	79	73	1153	19	4931	34	1097	2213		51	35	86	4	727	157	244	46	17,602
Wyoming	Sept.			387	3		74		216	2	100	71	3	1				53	1	57		968
	9 Mos.			1740	15	3	328	8	959	3	460	423	4	5	2	3		187	8	356	5	4,509
Total	Sept., 1950	149	195	40134	535	438	10821	93	31045	17	9249	11369	82	775	53	440	34	4253	1243	2644	215	113,784
Total	Sept., 1949	92	132	31084	382	337	10523	76	21345	42	7621	8852	28	650	70	424	18	4544	713	2100	220	89,253
Total	9 Months, 1950	1523	1599	318878	4253	3034	69309	1026	238710	225	72088	81197	457	6826	1201	2635	261	36595	8420	17884	1664	867,785
Total	9 Months, 1949	1249	1130	261548	4047	2756	87903	938	138350	275	61827	69853	299	4817	344	3097	177	42611	6150	26744	2069	717,084

* Data from R. L. Polk & Co.

Everywhere you go you see more and more Studebaker trucks

ANOTHER year of tremendous demand for Studebaker trucks is almost completed.

The record shows that Studebaker trucks now account for a sizable percentage of all new trucks purchased—and Studebaker is firmly established as one of the world's largest builders of trucks.

Put the pulling power, the staying power, the earning power of Studebaker trucks to work on *your* hauling.

Stop in and "talk truck" with a Studebaker dealer near by.

STUDEBAKER TRUCKS

Noted for low-cost operation

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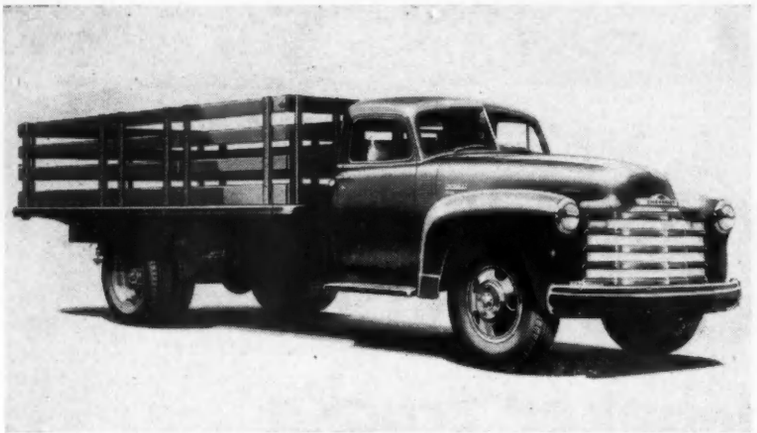
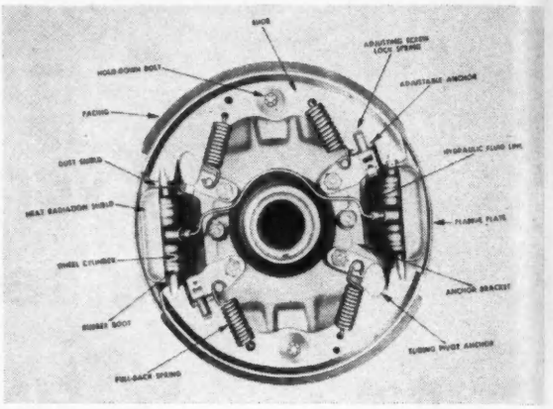


Typical of 1951 Chevrolet trucks is this heavy-duty stake model with new grille, improved ventilation and seating



The Twin-Action, self-energizing rear brake as used on the larger models

Twin Cylinder Brakes

Highlight 1951 Chevrolet Trucks

Independently self-energizing shoes are operated by two cylinders for better action, longer wear

HEAVY-DUTY Chevrolet trucks in the 1951 models now have "Twin-Action" rear brakes, a design that assures greater braking effectiveness and self-energization of both shoes whether traveling forward or backward. Each brake is equipped with two cylinders and two shoes. Better sealing against grit and mud, simple adjustment and longer life are claimed.

The new brake design is said to provide greater effectiveness, longer life, better sealing and easier servicing. Each brake assembly is equipped with two cylinders, each operating on the two shoes, and four anchors. Primary or sliding pivot anchors come into action during braking in forward motion, the secondary or adjustable anchors when braking in reserve. When brake pressure is applied, the shoes tend to move away from the anchors and contact the drums. As soon as facings contact the drum, the friction force tends to move each shoe in the direction of rotation, forcing it against its anchors and inducing self-energization. The two shoes are equally and independently self-energizing, resulting in greater braking effectiveness and equal wear.

In its 1951 models Chevrolet will make available trucks in 10 wheelbases, including the 179-in. chassis added late this year. Gross vehicle weights range from 4,000 to 16,000 lb. In this connection an important development is announced in higher ratings of the 4100 and 4400 series. Through changes in the front axle, springs and tire sizes, the mgv weight has been raised from 12,500 to 14,000 lb. Minimum gvw of the Series 6100 to 6400 has likewise been upped to 14,000 lb.

Drivers will find the 1951 cabs more comfortable. All cab models and the Suburban Carryall have new seats of simpler and more durable construction. The seat assembly carries two layers of springs. With different stiffnesses, frequencies of one layer tend to offset the other, thereby reducing vibration. Cab side windows introduce adjustable ventipanes, a comfort feature which will be appreciated by truck operators.

As a year ago Chevrolet will make available two engines of the economical valve-in-head design. They are the Loadmaster of 105 hp and the Thriftmaster which develops 92 hp.

Passenger Car Brake

The 1951 Chevrolet passenger car also features a new brake design said to offer easier application, greater self-energization, longer life, increased lining area, large diameter, greater freedom from brake surge, better sealing, less tendency toward grabbing and simple servicing. Besides the new design, improvement in braking efficiency is credited to an increase of 15 per cent in the lining area of the front brakes.

Each brake has one wheel cylinder and two shoes. The wheel cylinder is located near the top of the brake flange plate, just below the anchor pin. A pull back spring is installed between each shoe and the anchor pin to hold the upper ends of the shoes against the anchor pin when the brakes are released.

Lower ends of the shoe are connected by a link and helical spring. The link is made up of an adjusting screw, riding in a socket at the front, and threaded to a pivot nut at the back. Outer ends of the socket and pivot nut are notched to fit the webs of the brake shoes, providing freedom of motion between the link and the shoes. The spring is stretched from one shoe web to the other, crossing over the notched head of the adjusting screw. It bears against one of the notches in the head, and thus acts as a detent and lock for the adjusting screw. Rotation of the screw changes the length of the link which, in turn, moves the shoes in relation to the brake drum.

Although the composite brake drum construction, consisting of a cast alloy iron rim and a pressed steel web, is unchanged, ribs on the outer surface of the drum rim effect a better seal against the entrance of grime through the drum-to-flange plate joint.

Give us a pint of your used oil

Get a free Pure-Sure Analysis and find out how you can improve engine efficiency or cut operating costs.

Here's a *sure* way to find the *cause* of dirty engines, low oil pressure, high oil consumption, excessive engine wear, or any other complaint you may have regarding engine efficiency or operating costs.

A Pure-Sure Analysis of your used motor oil, made in Pure's modern laboratory, will tell you exactly what goes on inside your engine.

It will reveal faulty fuel combustion and poor filter performance . . . tell if operating temperatures are too high or too low . . . tell if metal particles are grinding away cylinder walls or if water and gasoline are fouling the motor oil.

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Another Sure Way to Cut Operating Costs

For lower operating and maintenance costs, protect your equipment with Pure's new line of lubricants for every fleet requirement.

New Purol H.D. Motor Oil is made from superior crudes and fully fortified to meet the exacting demands of heavy-duty service in Diesel or gasoline-powered trucks, buses and tractors.

It contains detergent-dispersants to insure *maximum engine cleanliness* . . . oxidation and bearing corrosion inhibitors, and a foam suppressor, to provide *sure engine protection*.

It's the heavy-duty leader of Pure Oil's fleet line, which includes Purol Motor Oil and Purol *Super* Heavy-Duty Motor Oil; Purelube Greases and Gear Lubricants; and Purol Torque-draulic Motor Oil.

BRAND NEW

Purol H.D.

THE OIL THAT CAN TAKE IT!

free PUBLICATIONS

FOR YOUR CONVENIENCE USE THIS POSTCARD

A selected list of the latest literature — catalogs, pamphlets, charts—chosen to help fleetmen improve operation and maintenance.

L55. Traffic Study

Is the traffic problem exacting a big toll in your city? You can do something about reducing waste in your own town by improving the flow of traffic on city streets and cutting accidents and inconveniences. Here is a booklet that will pave your approach to such problems.

Entitled "Get Out of the Traffic Muddle" this booklet is designed to show the average citizen what he can do to improve traffic conditions. Suggestions for seven basic steps in this project are discussed in detail. The outline suggests: 1. Get together, 2. Get the facts, 3. Get a program, 4. Get trained personnel, 5. Get public support, 6. Get organized, and 7. Get action.

This booklet will start you thinking, while additional assistance can be had from AMA, the publishers. Write L 55 on the postcard for your copy.

L56. Tube Repair Booklet

Here is a valuable piece of literature that should be in the hands of your tire man. This 8-page service bulletin provides up to date information on the correct care and usage of curing tubes, air bags and steam bags.

Profusely illustrated, the bulletin explains the causes of premature failures and contains practical advice on how to get longest service from these products. Among the specific types of failures described are those caused by buckling, tearing, splitting, cutting and defective rims. A list of service tips completes the editorial matter.

Just write L 56 on the accompanying postcard for a free copy.

L57. Welding Booklet

A new 12-page booklet, "*Heliarc* Welding in the Automotive Industry," summarizes the basic advantages of the inert gas shielded arc welding process for automotive work, particularly the reductions in finishing costs and the simplification of drawing and stamping operations. It describes in considerable detail several applications of the process already well established in the automotive industry. Information is given on fixture and equipment requirements, methods, procedure, and welding costs. The booklet is well illustrated with actual on-the-job photographs.

Copies of this booklet can be obtained without cost by writing L 57 on the postcard.

L58. Truck Industry Data

A booklet giving background information about the American Trucking Industry is now available to the trade.

"American Trucking Facts," prepared by the ATA public Relations Department, includes a summary of the development of the trucking industry and its position in the nation's transportation picture today. Also in the booklet are statistics on truck registrations, a brief history of American Trucking Associations and illustrations of various trucks.

Some of the facts included in the publication are: Although trucks constitute only 17 per cent of the total number of motor vehicles on our highways today, they pay more than 30 per cent of all special highway-user taxes, in addition to payments of income and other general taxes.

The grand total of all truck transportation adds up to an industry that is second only to agriculture as an employer of American men and women. More than 5,000,000 are given direct employment—three times as many as are employed by the nation's railroads, and more than all other forms of transportation combined.

The 700 trucks in 1904 have been increased to more than 8,000,000 trucks of all types today. This is a little more than half the trucks in the world. More than 25,000 communities throughout the country have no other land transportation service than that provided by highway.

The booklet also lists some of the special terms developed by truck drivers in a language of their own. For your copy write L 58 on the free postcard.

Late Product Flashes

Recent additions to the line of cutting tools put out by **Van Norman Co.**, Springfield, Mass., include a line of adjustable reamers in carbon or high speed steel and a new screw extractor set.

A new piston ring set developed by the **Perfect Circle Corp.**, includes two chrome plated rings per piston, top compression as well as the oil ring. In addition to normal springs, an optional set of HiPressure springs is packed with the oil rings for use in badly worn engines.

A long-lasting, colorless coating that protects automotive chrome or any bright metal or metal-plated surface against rust, pits, tarnish and corrosion is the newest addition to the **MoPar** line of auto parts and accessories.

Elastic upholstery material of vinyl plastic, with a new high slip finish, has been developed by **United States Rubber Co.** for use in trucks, automobiles and buses.

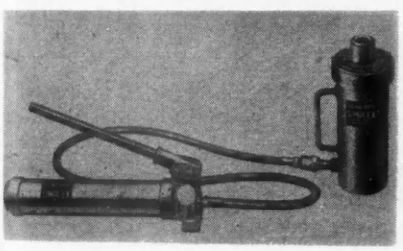
FOR YOUR CONVENIENCE USE THIS POSTCARD

New PRODUCTS

Illustrating and reviewing newest developments in parts, accessories, shop equipment and tools. For more information use the attached postcard.

P44. Hydraulic Rams

A new line of remote control hydraulic rams and pumps has been announced by Templeton, Kenly and Company of Chicago, manufacturers of Simplex Jacks. Named Re-Mo-Trol, the



new units will be in addition to the full range of mechanical and hydraulic industrial jacks produced by Templeton, Kenly.

The ram enables the operator to lift, pull or push from a distance and in any direction—up, down, sideways or at an angle. It features a "center hole" tubular ram used on units of 30-ton and greater capacity. The rams will be available in seven models, including a telescoping ram, ranging from 10 to 100-ton capacities. The pumps operate at a maximum of 10,000 lb per sq in., with overload safety protection.

P45. Flasher Switch

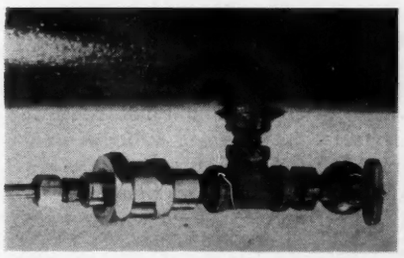
The Cole-Hersee Co. of Boston, Mass., has just introduced a new Motor Flasher No. 3033. This 6 volt, motor driven switch is specially made to synchronize flashing of one or more lights at a required number of cycles per minute. The cycling is constant and is not controlled or varied by the lamp load. It comes equipped with 2 screws and nuts for mounting. Also available is a 12 volt unit unit.

P46. Drill Converter

A new attachment to convert any ¼-in. drill into an automatic nut running and screwdriving tool has been introduced by the Herbrand Division, Bingham-Herbrand Corp., Fremont, Ohio. Called the Dril-O-Driver, it employs automatic friction drive to permit operator to regulate speed and force. It is said to increase the efficiency and utility of any electric or pneumatic drill as a driver of oil pan bolts, head nuts. machine screws, cap screws, sheet metal screws and wood screws.

P47. Moisture Eliminator

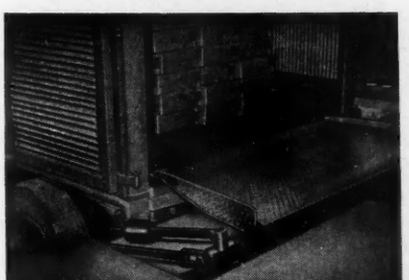
"Aquavent" automatically eliminates water, oil and sludge from compressed air storage tanks of trucks and buses with air brake systems. Built from solid brass bar, it has no cast parts, no valve



seats, springs, gaskets, diaphragm or internal slots to wear, stick or fail. A self-washing action removes heavy sludge or grit along with all moisture, and insures against the possibility of sticking. Burd Mfg. Co., Springfield, Mass.

P48. Loading Platform

Made in two sizes which meet practically every loading platform condition, the new Rite-Hite Loading Dock



is designed to provide a smooth extension of the plant platform directly into the carrier. It is adjustable both vertically and horizontally to make exact spotting of the carrier unnecessary since it automatically adjusts itself to the changing height of the carrier.

One model is 42 in. from front to rear, and has a 12-in. vertical adjustment. The other is 72 in. with an 18-in. adjustment. The width of both models is 72 in. and a 14-in. horizontal adjustment is afforded in each instance. Karl A. Herman Co., Grand Rapids, Mich.

P49. Piston Rings

A new oil control piston ring with a very low rate of tension loss, a new all-metal oil seal ring with unusually wide temperature range, and a new high strength alloy iron for piston rings are three recent developments by Muske-

(TURN TO NEXT PAGE, PLEASE)

New Product Descriptions

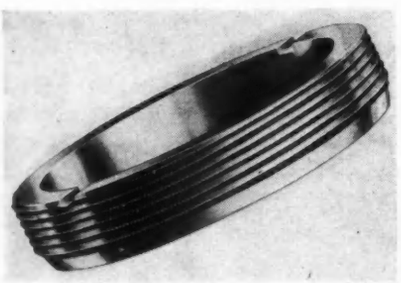
Continued from Page 77

gon Piston Ring Co., Muskegon, Mich.

The new "Flexline" oil control rings are one-piece steel rings of the circumferentially compressible type, designed for automotive passenger car and truck engines. Features of the new ring include complete side sealing of the openings between the segments forming the ring lands, together with unusually high resistance to carbon plugging. Tension loss resulting from wear occurs very slowly. Another outstanding feature of the "Flexline" ring is its ability to conform to all cylinder contours.

P50. Screw-In Valve Seats

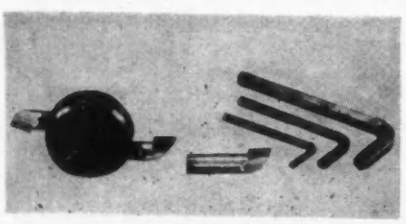
These screw-in valve seats have expansion clearance between the threads and are locked in position. They are said to give original new engine valve



mileage, can then be reground and replaced in same threads without enlarging the counterbore. Carbon can not get between seats and the block. Seats are individually cast under pressure from chrome-nickel-iron alloy and are close grained. Peterson Welding Laboratories, Inc., Kansas City, Mo.

P51. Turret Head

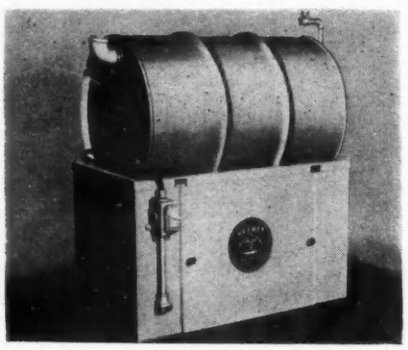
A new idea for refinishing surfaces of brake drums is announced by Dixie Machine Tool of Cincinnati. The new Dixie Turret-Head is said to turn drums smoother, faster and more accurately. The kit includes one carbide tool for roughing only and one for finishing cuts. It is a precision-built unit of



hardened and ground material, instantly indexes from rough to finish, does not change the micrometer setting of the lathe.

P52. Washing System

A new car and truck washing system, known as the Drex-Foam Process employs a portable machine which can



be used either in a stall or with a continuous thru-type conveyor. In operation, the machine is charged with synthetic detergent. The machine is equipped with a motor-driven pump. Cleaning foam is sprayed over the bodies of trucks and autos which wets and loosens all dirt, grease and road grime. Detrex Corp., Detroit, Mich.

P53. Automatic Shutters

Automatic radiator shutters designed for air, hydraulic, or vacuum operation are available from Kysor Heater Co., Cadillac, Mich., for nearly every make and model of vehicle. Designed to provide a closer control of engine temperature, these heavy-duty shutters can be installed with a minimum of time and effort.

Features of the product include porous bronze bushings at all bearing points, an anti-chatter device along with rubber seals, carefully designed aligning rails and heavy-duty sheet steel frame.

P54. Compact Lubricator

Designed for lubrication departments where space is limited but providing maximum dress-up and utility of standard-size units, new "Space Saver" Wall Alemiters have been announced by the Alemite Div. of Stewart-Warner Corp., Chicago.

This new unique shielded equipment comprises matching high and low pressure lubricant pumps and hose reels. The units are 41½ in. high. A unit with one high and one low pressure pump, for instance, is but 43¾ in. wide. Depth, too, is reduced, the unit extending out from the wall but 21¾ in.

P55. Truck Safe

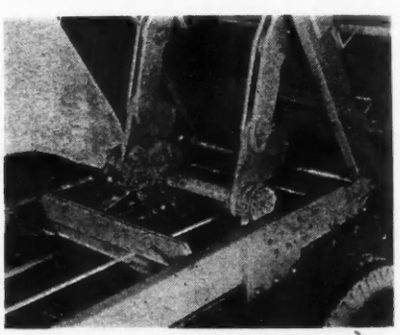
This malleable iron safe designed by Midwest Project Engineering Co., Chicago, Ill., protects the driver from assault injuries and guards his collection money.

When key is turned, cam throws locking bolt which locks lid to the safe, practically as an integral unit. Heavy steel bolts with round heads are used to anchor the safe to the fire-wall under the dashboard. It also may be mounted to the floorboard, in the storage area, or any other desirable location.

P56. Mechanical Hoist

A new *mechanical* hoist that can be serviced without special tools is now ready for delivery to the trade.

The Dube Mechanical Hoist is said to give top performance in any weather, operating with equal efficiency at 70 deg below zero or 120 deg above. Because it comes factory-equipped with positive power-down as well as power-up, and a 55 to 60-deg dumping angle,



it is said to be efficient in all spreading operations and in handling split loads of coal or other materials.

The power to lift the load is taken from the truck engine through conventional power take-off to a speed reducer and cone worm and gear set. The cam and roller principle combined with lifting arms generates ample power to dump the biggest load. Capacities range from models designed for light, medium and light-heavy trucks, to a model designed for heavy-duty dump trucks having a gross vehicle weight of 23,000 to 28,000 lb. The 600:1 overall gear reduction ratio provides economical use of power with maximum efficiency.

The Dube unit is being manufactured by the Detroit Mechanical Hoist Corp., Detroit, Mich.

P57. Fuel Filter

A new 50,000 mile shock absorber diaphragm is used in the Airtex fuel filter, manufactured by Airtex Automotive Division, Chefford Master Mfg. Co., Inc., Fairfield, Ill. Its spring-cush-

(TURN TO PAGE 164, PLEASE)

Truck Specifications Table

OF CURRENT PRODUCTION MODELS

DATA SUPPLIED BY MANUFACTURERS AND TABULATED BY

COMMERCIAL CAR JOURNAL

Key to Definitions, References and Abbreviations

DEFINITIONS

MAKE AND MODEL

Only Domestic Truck Models are listed.

OPTIONAL UNITS

For the express purpose of best fitting the truck to the individual job most of the models listed can be provided with optional engines, transmissions, axles, etc., and these models when so equipped are considered standard stock models.

CHASSIS LIST PRICE

The chassis list price applies to the minimum standard wheelbase with standard tires and standard equipment. All prices are F.O.B. factory. Chassis list price does not include the price of the Cab unless otherwise noted.

RECOMMENDED GROSS VEHICLE WEIGHT FOR NORMAL SERVICE

The Gross Weights published herewith are those supplied by manufacturers as their Recommended Gross Vehicle Weights for Normal Operating Conditions, and are based upon the Maximum Authorized Tire Size listed. In actual practice the manufacturer may either increase or decrease the gross vehicle weight rating when either favorable or unfavorable operating conditions are involved. Since the proper performance of a motor truck depends upon many factors, including grades, road conditions, etc., the gross weights that a manufacturer is prepared to recommend will vary with particular conditions, and the manufacturer's own standard of safety factors. Specific recommendations, therefore, should be obtained from the manufacturer's representative.

CHASSIS WEIGHT

The chassis weight listed includes the weight of the minimum standard wheelbase chassis, with cowl, with standard tires, with standard equipment, with crankcase and cooling system full, and 5 gallons of fuel in the tank. It does not include the weight of the Cab. This applies to C.O.E. as well as conventional chassis types. Exceptions are noted.

STANDARD TIRE SIZE

The standard tire size listed is that which is included in the Chassis List Price.

MAXIMUM AUTHORIZED TIRE SIZE

The tire size listed in this column is the maximum size recommended by the manufacturer of the chassis for the Gross Vehicle Weight for Normal Operating Conditions. It is furnished at extra cost, if it differs from the standard size. Dual rears are understood; exceptions noted.

MINIMUM STANDARD WHEELBASE

The minimum standard wheelbase is the so-called standard wheelbase on which the Chassis List Price is based.

MAXIMUM STANDARD WHEELBASE

The maximum standard wheelbase is the extreme end of the standard range of wheelbases offered by the chassis maker.

MAXIMUM BRAKE HP.

Maximum Brake Horsepower at Given R.P.M. is actual dynamometer reading without accessories.

GEAR RATIO RANGE

Gear Ratio Range in High—Ratios within the range given are available at no extra cost. Exceptions are noted.

TRACTORS

Unless given the designation (N)—meaning not available as a tractor—all standard models may be assumed to be available as tractors. Exclusively Tractor models are designated (T).

KEY TO REFERENCES

c.f.—Cab Forward design.
c.o.e.—Cab-Over-Engine design.
(D)—Diesel-engine equipped.
(T)—Designed for tractor use only.
(C)—Converted Ford or Chevrolet Model.

KEY TO ABBREVIATIONS

MAKES—ALL

B—Bendix
BL—Brown-Lipe.
Bu or Bud—Buda.
BW—Bendix-Westinghouse
C—Chevrolet.
Cl or Cla—Clark.
Con—Continental.
Cum—Cummins-Diesel.
Eat—Eaton.
F—Ford.
Fu—Fuller.
G-H—Goodyear-Hawley type.
H—Hotchkiss.
Her—Hercules.
HS—Hall-Scott.
L—Lockheed.
LH—Lockheed front, Wagner "hi-Tork" rear.
LT—Lockheed type front, Timken rear.
LW—Lockheed front, Wisconsin rear.
M—Midland.
N.P.—New Process.
O or Ow—Own.
Op or Opt—Optional.
Shu—Shuler.
Spi—Spicer
T or Tim—Timken-Detroit Axle Co.
Tw—Timken-Detroit—Westinghouse.
TW—Timken-Detroit—Wisconsin.
WG—Warner Gear.
Wau—Waukesha.
W or Wis—Wisconsin.
Wg—Wagner "hi-Tork"
Ws—Westinghouse.
WW—Westinghouse or Wagner

WHEELS DRIVEN

2F—Forward unit of Rear Axle Group.
2R—Rear Unit of Rear Axle Group
4R—Forward and rear units of Rear Axle Group.
—All wheels.

BRAKES—SERVICE

Location

4—Four Wheels, front and rear.
4r—Four Wheels, rear only.

Type

I—Internal.
X—External.

Operation

A—Air.
H—Hydraulic.
V—Vacuum.
D or Dp—Dual Primary

BRAKES—HAND

Location

C—Center of double propeller shaft.
2—Rear wheels.
4—Four wheels.
6—Six wheels.
P—Back of Power Divider.
J—Jackshaft.
T—Transmission.
F—Driveshaft.

Type

D—Tru-Stop disk.
I—Internal.
M—Mechanical.
X—External.
PD—Two drums on rear of power divider.

BRAKE DRUMS

Material

a—Cast alloy iron.
A—American Car Foundry
c—Cast iron.
Cc—Composite Front, Cast Iron in rear.
Ce—Centrifuse.
Cl—Copper iron.
Co—Composite.
D—Dayton.
E—Ermalite.
G—Gunite.
N—Nickel iron.
S—Steel.

(Where a combination of any of the above is used, the first reference mark applies to the front and the second to the rear drums.)

FRAME

Type

C—Channel.
T—Channel tapered front and rear.
L—Channel reinforced with liner.
B—Channel reinforced with both liner and fishplate.
P—Channel reinforced with plate.
TL—Channel tapered front and rear reinforced with liner.
D—Drop Center
Tf—Tapered front.
A—Straight section sidemembers, lined with oak inserts.
Z—Reinforced (X) member frame, box type sections.

REAR AXLE

Final Drive and Type

B—Bevel.
CD—Chain Drive
F—Full-floating.
H or Hy—Hypoid.
d—Dual range axle.
2—Double Reduction.
S—Spiral bevel.
W—Worm.
¾—Three Quarters Floating.
½—Semi-Floating
T—Torque Tube

GEAR RATIOS

(**) Only one ratio.

Drive and Torque

H—Hotchkiss (springs).
R—Radius Rods.
L—Parallel Torque Rods
T—Torque Arm.

GOVERNOR STANDARD

Y—Yes.
N—No.

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(Continued from Page 81)

Line Number	MAKE AND MODEL	Chassis List Price	WHEEL-BASE Minimum Standard	WHEEL-BASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear Standard Front and Rear	TIRE SIZES Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings Number Diameter and Length	Governor Standard	TRANSMISSION Make and Model	Forward Speeds	REAR AXLE Make and Model	Gear and Type	Drive & Torque	Gear Ratio Range in High	FRONT AXLE Make and Model	BRAKES SERVICE Make Location Type Operation	Lining Area	Drum Area	Drum Material	Hand Location Type	C-A Dimensions (Min. Std. W. B.)	FRAME Side Rail Dimensions	Type
	Available																														
1	(c.o.e.)....200	.....	....	....	15000	5500●	7.00/20D	8.25/20	Wau BM	6–3 1/2x4 1/2	263	5.9	178	78–2800	7–2 1/2x10 1/2	N	WG T9	4	Tim E100DPH	HF	H	–6.20	Tim 32502H	L4IHV	314	534	a	TX	.....	10x3x 1/2	T
2	(c.o.e.)....225	.....	....	....	16500	6200●	7.50/20D	8.25/20	Wau BZ	6–4x4 1/2	320	5.9	235	105–3200	7–2 1/2x10 1/2	N	WG T97	4	Tim E100DPH	HF	H	–6.20	Tim 32502H	L4IHV	314	534	a	TX	.....	10x3x 1/2	T
3	(c.o.e.)....250	.....	....	....	20000	6400●	8.25/20D	9.00/20	Wau BZ	6–4x4 1/2	320	5.9	235	105–3200	7–2 1/2x10 1/2	N	Fu 5A330	5	Tim H100DPH	HF	R	–6.80	Tim 32502H	L4IHV	344	584	a	TX	.....	10x3x 1/2	T
4	(c.o.e.)....400	.....	....	....	22000	6800●	9.00/20D	10.00/20	Wau BZ	6–4x4 1/2	320	5.9	235	105–3200	7–2 1/2x10 1/2	N	Fu 5A330	5	Tim L100DPH	HF	R	–6.83	Tim 35000H	L4IHV	370	642	a	TX	.....	12x3x 1/2	T
5	(c.o.e.)....500	.....	....	....	23000	7500●	9.00/20D	10.00/20	Wau MZA	6–4 1/4x4 3/4	404.5	6	285	130–3000	7–2 1/2x12 1/2	Y	Fu 5F430	5	Tim L100DPH	HF	R	–6.83	Tim 35000H	L4IHV	370	642	a	TX	.....	12x3x 1/2	T
6	(c.o.e.)....550	.....	....	....	28000	8100●	10.00/20D	11.00/20	Wau MZA	6–4 1/4x4 3/4	404.5	6	285	130–3000	7–2 1/2x12 1/2	Y	Fu 5F430	5	Tim Q100DPH	HF	R	–7.80	Tim 26452H	L4IHV	458	846	a	TX	.....	12x3x 1/2	T
7	(c.o.e.)....550 X	.....	....	....	32000	9600●	10.00/20D	11.00/24	Wau MZA	6–4 1/4x4 3/4	404.5	6	285	130–3000	7–2 1/2x12 1/2	Y	Fu 5F430	5	Tim S200DPH	2F	R	–7.84	Tim 26452H	L4IHV	576	1054	a	FD	.....	14x3x ⅄	T
8	(c.o.e.)....600	.....	....	....	28000	10000●	10.00/20D	11.00/24	Wau 140 GK	6–4 1/2x5 1/2	525	6.4	425	172–2600	7–3 1/4x13 7/8	Y	Fu 5A650	5	Tim R100P	HF	R	–7.40	Tim 26452TW	L4IA	566	950	a	FD	.....	14x3x ⅄	T
9	(c.o.e.)....601	.....	....	....	28000	10900●	10.00/20D	11.00/24	Wau 145 GK	6–5 1/4x6	779	6.2	595	240–2400	7–3 1/2x17 5/8	Y	Spi 7851	4	Tim R100P	HF	R	–7.40	Tim 26452TW	L4IA	566	950	a	FD	.....	14x3x ⅄	T
10	(D) (c.o.e.)....602	.....	....	....	28000	11200●	10.00/20D	11.00/24	Cum HB600	6–4 7/8x6	672	17.5	500	150–1800	7–4 1/2x16 1/2	Y	Spi 7851	4	Tim R100P	HF	R	–7.40	Tim 26452TW	L4IA	566	950	a	FD	.....	14x3x ⅄	T
11	Biederman...NSH	.....	130	190	21000	6070	8.25/20D	10.00/20	Her JXLD	6–4x4 1/2	339	6.9	272	131–3200	7–2 1/2x10 1/2	N	Fu 5A330	5	Tim H700DPH	SF	H	** –7.2	Tim 35000HX	LH4IH	514	744	G	T	60	9x3x 1/2	C
12	.....NSD	.....	130	190	21000	6070	8.25/20D	10.00/20	Her JXLD	6–4x4 1/2	339	6.9	272	131–3200	7–2 1/2x10 1/2	N	Fu 5A330	5	Tim H700DPH	2D	H	6.13–8.15	Tim 35000HX	LH4IH	514	744	G	T	60	9x3x 1/2	C
13	.....NSR	.....	142	171	21000	7420	8.25/20D	10.00/20	Her JXLD	6–4x4 1/2	339	6.9	272	131–3200	7–2 1/2x10 1/2	N	Spi 3541UP	5	Tim H110DPH	HFd	H	** –6.4	Tim 35141PX	T4A	.....	.....	G	T	.....	9x3x 1/2	C
14	.....HL	.....	93	197	30000	12200	10.00/24D	12.00/24	Wau 140 GK	6–4 1/2x5 1/2	525	6.4	425	172–2600	7–3 1/4x13 7/8	Y	Spi 6252A	5	Tim R200	HFd	H	6.41–8.37	Tim 36000TW	T4A	.....	.....	G	T	81	10x3x ⅄	C
15	Brown....R6572T	.....	144	166	33000	.....	11.00.22	12.00/24	Con R6572	6–4 3/4x5 3/4	572	5.9	440	172–2600	7–3 1/4x14 1/2	Y	Spi 6252B	5	Tim R100	Hy	H	** –5.28	Tim FE900	Ws4IA	.....	.....	a	2M	67	9 1/2x3 1/2x1 1/4	Tf
16	.....140GKT	.....	144	166	33000	.....	11.00/22	12.00/24	Wau 140GK	6–4 1/2x5 1/2	525	6.4	425	168–2400	7–2 3/4x13 7/8	Y	Spi 6252B	5	Tim R100	Hy	H	** –5.28	Tim FE900	Ws4IA	.....	.....	a	2M	67	9 1/2x3 1/2x1 1/4	Tf
17	(D).....HB600T	.....	144	166	33000	.....	11.00/22	12.00/24	Cum HB600	6–4 7/8x6	672	17	500	150–1800	7–4 1/2x16 1/2	Y	Fu 5A650	5	Tim R100	Hy	H	** –5.28	Tim FE900	Ws4IA	.....	.....	a	2M	67	9 1/2x3 1/2x1 1/4	Tf
18	(D).....HRB600T	.....	144	166	33000	.....	11.00/22	12.00/24	Cum HRB600	6–5 1/4x6	743	15.5	530	165–1800	.....	Y	Fu 5A920	5	Tim R100	Hy	H	** –5.28	Tim FE900	Ws4IA	.....	.....	a	2M	67	9 1/2x3 1/2x1 1/4	Tf
19	(D).....NHB600T	.....	144	166	33000	.....	11.00/22	12.00/24	Cum NHB600	6–5 1/4x6	743	15.5	575	200–2100	.....	Y	Fu 5A920	5	Tim 8200	2F	H	** –6.42	Tim FE900	Ws4IA	.....	.....	a	2M	67	9 1/2x3 1/2x1 1/4	Tf
20	(D).HRBB600T	.....	144	166	33000	.....	11.00/22	12.00/24	Cum HRBB600	6–5 1/4x6	743	15.5	500	175–2000	.....	Y	Fu 5A650	5	Tim R100	Hy	H	** –5.28	Tim FE900	Ws4IA	.....	.....	a	2M	67	9 1/2x3 1/2x1 1/4	Tf
21	(D)...6DA844T	.....	144	166	33000	.....	11.00/22	12.00/24	Bu 6DC844	6–5 1/4x6 1/2	844	...	640	210–2100	.....	Y	Spi 8045	4	Tim R300	....	H	.....	Tim FE900	Ws4IA	.....	.....	a	2M	67	9 1/2x3 1/2x1 1/4	Tf
22	Chevrolet.....HP	895	116	....	4600	▼2570	6.00/16S	15S	O-Thrift Mas.	6–3 1/2x3 3/4	216	6.6	176	92–3400	4– ♦ ♦	N	Own	§3	Own	Hy	T	** –4.11	Own	O4IH	150	242	Co	2I	39	5 3/4x2 1/4x ⅄	C
23	.....HR	990	125	....	5800	▼2870	15S	7.50/17S	O-Thrift Mas.	6–3 1/2x3 3/4	216	6.6	176	92–3400	4– ♦ ♦	N	Own	§3	Own	HyF	H	†† –4.57	Own	O4IH	176	272	Co	2I	48 1/4	5 1/4x2 1/4x ⅄	C
24	†Fwd. Control.HT	1005	125	....	7000	▼2675	15S	7.50/17S	O-Load Mas.	6–3 ⅄x3 ‡‡	235	6.7	182	92–3400	4– ♦ ♦	N	Own	§3	Own	HyF	H	** –5.14	Own	O4IH	202	302	Co	2I	.....	5 1/4x2 1/4x ⅄	C
25	.....HS	1060	137	....	8800	▼3175	7.00/17S	7.00/18	O-Thrift Mas.	6–3 1/2x3 3/4	216	6.6	176	92–3400	4– ♦ ♦	N	Own	4	Own	HyF	H	** –5.14	Own	O4IH	248	371	Co	2I	60	7x2 3/4x ⅄	C
26	†Fwd. Control.HU	1095	137	...	10000	▼2915	7.00/17S	7.00/18	O-Load Mas.	6–3 ⅄x3 ‡‡	235	6.7	182	92–3400	4– ♦ ♦	N	Own	4	Own	HyF	H	** –5.14	Own	O4IH	248	371	Co	2I	.....	7x2 3/4x ⅄	C
27	.....TJ	1120	137	....	12500	▼3565	7.00/20S	7.50/20	O-Thrift Mas.	6–3 1/2x3 3/4	216	6.6	176	92–3400	4– ♦ ♦	N	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	330	478	Co	2I	60	7x2 3/4x ⅄	C
28	.....TK	1155	161	....	12500	▼3685	7.00/20S	7.50/20	O-Thrift Mas.	6–3 1/2x3 3/4	216	6.6	176	92–3400	4– ♦ ♦	N	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	330	478	Co	2I	84	8 1/4x2 1/4x1 1/4	C
29	(School bus)..TL	1300	161	....	12000	▼4115	6.50/20D	7.00/20	O-Thrift Mas.	6–3 1/2x3 3/4	216	6.6	176	92–3400	4– ♦ ♦	N	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	330	478	Co	2I††	.....	8 1/4x2 1/4x1 1/4	C
30	.....TVS	1440	137	....	15000	▼4220	7.50/20D	9.00/20▲¶	O-Load Mas.	6–3 ⅄x3 ‡‡	235	6.7	193	105–3600	4– ♦ ♦	Y	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	330	478	Co	2I	60	8 1/4x2 1/4x1 1/4	C
31	.....TWS	1475	161	....	15000	▼4285	7.50/20D	9.00/20▲¶	O-Load Mas.	6–3 ⅄x3 ‡‡	235	6.7	193	105–3600	4– ♦ ♦	Y	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	330	478	Co	2I	84	8 1/4x2 1/4x1 1/4	C
32	.....TYS	.....	179	....	15000	▼4405	7.50/20D	9.00/20▲♣	O-Load Mas.	6–3 ⅄x3 ‡‡	235	6.7	193	105–3600	4– ♦ ♦	Y	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	330	478	Co	2I	102	8 1/4x2 1/4x1 1/4	C
33	(c.o.e.).....TPS	●1795	110	....	15000	●▼4690	7.50/20D	9.00/20▲¶	O-Load Mas.	6–3 ⅄x3 ‡‡	235	6.7	190	100–3500	4– ♦ ♦	Y	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	330	478	Co	2I	60 1/2	8 1/4x2 1/4x1 1/4	C
34	(c.o.e.).....TRS	●1830	134	....	15000	●▼4780	7.50/20D	9.00/20▲¶	O-Load Mas.	6–3 ⅄x3 ‡‡	235	6.7	190	100–3500	4– ♦ ♦	Y	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	330	478	Co	2I	84 1/2	8 1/4x2 1/4x1 1/4	C
35	(c.o.e.).....TSS	●1865	158	....	15000	●▼4875	7.50/20D	9.00/20▲¶	O-Load Mas.	6–3 ⅄x3 ‡‡	235	6.7	190	100–3500	4– ♦ ♦	Y	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	330	478	Co	2I	108 1/2	8 1/4x2 1/4x1 1/4	C
36	(c.o.e.).....TP	●1795	110	....	16000	●▼4690	7.50/20D	9.00/20▲¶	O-Load Mas.	6–3 ⅄x3 ‡‡	235	6.7	190	100–3500	4– ♦ ♦	Y	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	330	478	Co	2I	60 1/2	8 1/4x2 1/4x1 1/4	C
37	(c.o.e.).....TR	●1830	134	....	16000	●▼4780	7.50/20D	9.00/20▲¶	O-Load Mas.	6–3 ⅄x3 ‡‡	235	6.7	190	100–3500	4– ♦ ♦	Y	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	330	478	Co	2I	84 1/2	8 1/4x2 1/4x1 1/4	C
38	(c.o.e.).....TS	●1865	158	....	16000	●▼4875	7.50/20D	9.00/20▲¶	O-Load Mas.	6–3 ⅄x3 ‡‡	235	6.7	190	100–3500	4– ♦ ♦	Y	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	330	478	Co	2I	108 1/2	8 1/4x2 1/4x1 1/4	C
39	.....TV	1440	137	....	16000	▼4220	7.50/20D	9.00/20▲¶	O-Load Mas.	6–3 ⅄x3 ‡‡	235	6.7	193	105–3600	4– ♦ ♦	Y	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	330	478	Co	2I	60	8 1/4x2 1/4x1 1/4	C
40	.....TW	1475	161	....	16000	▼4285	7.50/20D	9.00/20▲¶	O-Load Mas.	6–3 ⅄x3 ‡‡	235	6.7	193	105–3600	4– ♦ ♦	Y	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	330	478	Co	2I	84	8 1/4x2 1/4x1 1/4	C
41	.....TS	.....	179	....	16000	▼4405	7.50/20D	9.00/20▲♣	O-Load Mas.	6–3 ⅄x3 ‡‡	235	6.7	193	105–3600	4– ♦ ♦	Y	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	330	478	Co	2I	102	8 1/4x2 1/4x1 1/4	C
42	(School bus).TX	1520	179	....	15000	▼4650	7.50/20D	8.25/20	O-Load Mas.	6–3 ⅄x3 ‡‡	235	6.7	193	105–3600	4– ♦ ♦	Y	Own	4	Own	HyF	H	▫▫ –6.17	Own	O4IH	330	478	Co	2I††	.....	8 1/4x2 1/4x ⅄	C
43	Corbitt....G101B■	.....	137	....	22000	.....	9.00/20	10.00/20	Con M6330	6–4x4 3/4	330	6.1	248	104–2800	7–2 1/2x12	Y	Cla 205V	5	Tim L100	HF	H	4.11–7.40	Tim 32502	LT4IHV	466	820	a	TX	61	8x3 1/4x1 1/4	T
44	.....G301B■	.....	155	....	26000	.....	10.00/22	11.00/22	Con B6371	6–4 1/2x4 1/2	371	6.0	280	100–2600	7–2 1/2x13 1/2	Y	Fu 5A43	5	Tim Q200	2F	H	7.77–8.53	Tim 35100	LT4IHV	730	1016	a	TX	71	8 1/2x3 1/4x ⅄	T
45	.....G30 B■	.....	145	....	28000	.....	10.00/22	11.00/22	Con B6427	6–4 ⅄x4 1/2	427	5.9	325	127–2600	7–2 1/2x13 1/2	Y	Fu 5A43	5	Tim R300	2F	H	6.41–8.37	Tim 35100	Ws4IA	598	950	a	TX	61	8 1/2x3 1/4x ⅄	T
46	.....G402B30	.....	145	....	30000	.....	10.00/22	11.00/24	Con T6427	6–4 ⅄x4 1/2	427	6.3	336	151–2600	7–2 1/2x13 1/2	Y	Fu 5A43	5	Tim 8200	2F	H	5.91–9.76	Tim 35100	Ws4IA	672	1054	a	TX	61	10 1/2x3 1/4x ⅄	T
47	.....G601B32	.....	155	....	32000	.....	10.00/20	11.00/24	Con R6513	6–4 1/2x5 1/2	513	5.9	400	170–2600	7–3 1/4x14 1/2	Y	Spi 6253	5	Tim 8200	2F	H	5.91–9.76	Tim FE900	Ws4IA	672	1054	a	TD	72	10 1/2x3 1/4x1 1/4	TL
48	.....G603B34	.....	155	....	34000	.....	10.00/20	12.00/24	Con R6602	6–4 1/2x5 1/2	602	5.9	464	200–2600	7–3 1/4x14 1/2	Y	Fu 5A65	5	Tim U200	2F	H	5.91–9.76	Tim FE900	Ws4IA	672	1054	a	TD	72	10 1/2x3 1/4x1 1/4	TL
49	(T).....G101T20	.....	137	....	20000	.....	8.25/20	9.00/20	Con M6330	6–4x4 1/2	330	6.1	248	104–2800	7–2 1/2x12	Y	Cla 205V	5	Tim H100	HF	H	** –5.29	Tim 32502	Ws4IA	418	642	a	TX	61	7 1/2x3 1/4x1 1/4	T
50	(T).....G302T22	.....	137	....	22000	.....	9.00/20	10.00/22	Con B6427	6–4 ⅄x4 1/2	427	5.9	325	127–2600	7–2 1/2x13 1/2	Y	Fu 5A43	5	Tim L100	HF	H	** –5.29	Tim 32502	Ws4IA	490	746	a	TX	61	7 1/2x3 1/4x ⅄	T
51	(T).....G402T22	.....	145	....	25000	.....	10.00/20	10.00/22	Con T6427	6–4 ⅄x4 1/2	427	6.3	336	151–2600	7–2 1/2x13 1/2	Y	Fu 5A43	5	Tim Q100	HF	H	5.29–6.83	Tim 35000	Ws4IA	562	850	a	TX	61	8x3 1/4x1 1/4	T
52	(T).....G602T27	.....	147	....	28000	.....	10.00/22	11.00/24	Con R6572	6–4 1/4x5 1/2	572	5.9	440	189–2600	7–3 1/4x14 1/2	Y	Spi 6253	5	Tim R100	HF	H	6.17–7.40	Tim 35100	Ws4IA	598	950	a	2M	64	8 1/2x3 1/4x ⅄	T
53	(T)(D) D202T20	.....	137	....	20000	.....	8.25/20	9.00/20	Her DJXH	6–3 3/4x4 1/2	298	15	233	99–2600	7–3x10 1/4	Y	Cla 205VO	5	Tim H300	2dF	H	6.13–8.15	Tim 32502	Ws4IA	418	642	a	TX	61	7 1/2x3 1/4x ⅄	T
54	(T)(D) D401T23	.....	145	....	23000	.....	10.00/20	10.00/22	Her DWXD	6–4 1/4x4 3/4	404	15	404	135–2600	7–3 1/2x11 5/8	Y	Fu 5A430	5	Tim L300	2dF	H	6.32–8.22	Tim 35000	Ws4IA	490	746	a	TX	61	8x3 1/4x1 1/4	T
55	(T)(D) D402T25	.....	145	....	25000	.....	10.00/20	10.00/22	Her DWXLD	6–4 1/4x5	426	15	336	142–2600	7–3 1/2x11 5/8	Y	Fu 5A430	5	Tim Q300	2dF	H	6.53–8.53	Tim 35000	Ws4IA	562	850	a	TX	61	8x3 1/4x1 1/4	T
56	(T)(D) D601T27	.....	150	....	27000	.....	10.00/22	11.00/24	Her DRXC	6–4 5/8x5 1/4	529	15	400	147–2200	7–3 1/2x13 3/4	Y	Spi 6253	5	Tim R300	2dF	H	6.41–8.37	Tim 35100	Ws4IA	598	950	a	2M	67	8 1/2x3 1/4x ⅄	T
57	(T)(D) D800 Ser.‡‡	.....	160	....	30000	.....	10.00/22	11.00/24	Cum HB600	6–4 7/8x6	672	17	500	150–1800	7–4 1/2x16 1/2	Y	Fu 5C720	5	Tim R100	HF	H	5.29–6.83	Tim FE900	Ws4IA	598	950	a	2M	66	8 1/2x3 1/4x ⅄	T
58	(T)(D) D803T32	.....	160	....	32000	.....	10.00/22	11.00/24	Cum NHB600	6–5 1/4x6	743	17	575	200–2100	7–4 1/2x16 1/2	Y	Fu 5C720	5	Tim S200	2F	H	5.91–7.21	Tim FE900	Ws4IA	672	1054	a	TD	66	8 1/2x3 1/4x ⅄	T
59	Crosley.....B	.....	80	....	2130	1330°°	4.50/12	.....	Own	4–2 1/2x2 1/4	44	7.8	33	26–5400	5–‡	...	WG-A8I-T92	3	Spi	2F	H	** –5.17	Own	B4IH	65 ⅄	.....	c	2	.....	.....	C
60	Dodge.....B-2-B	.....	108	108	4850	.....	6.00/16S	6.50/16S	Own T-172	6–3 1/4x4 1/2	217	6.6	172	96–3600	4–2 1/2x4.8	N	NP-88840	3	Own T172	H	H	4.1 –4.78	Own T172	O4IH	175	264	cE	TX	40	⅄x2 ⅄x6 ⅄	C
61	.....B-2-C	.....	116	116	5800	.....	7.00/15S	7.00/15S	Own T-174	6–3 1/4x4 1/2	217	6.6	172	96–3600	4–2 1/2x4.8	N	NP-88840	3	Own T174	H	H	4.1 –4.78	Own T174	O4IH	184	277	Co	TX	48	⅄x2 ⅄x6 ⅄	C
62	.....B-2-D	.....	116	126	8000	.....	6.00/16S△	6.00/20	Own T-176	6–3 1/4x4 1/2	230	6.7	187	102–3600	4–2 1/2x4.8	N	NP-88770	3	Own T176	HyF	H	3.9 –4.89	Own T176	O4IH	209	316	Co	TX	48	⅄x2 ⅄x6 1/2	C
63	Rt. Van Sp. B1DU	.....	102	117	7900	.....	6.50/16S△	8.25/16S	Own T-164	6–3 1/4x4 1/2	230	6.6	186	94–3200	4–2 1/2x4.8	N	NP-88490	3	Own T164	HyF	H	3.9 –4.89	Own T164	O4IH	209	316	Co	TX	.....	⅄x2 ⅄x6 1/2	C
64	Rt. Van Sp. B1EU	.....	102	142	10100	.....	7.50/16S*	9.00/16S	Own T-165	6–3 1/4x4 1/2	230	6.6	186	94–3200	4–2 1/2x4.8	N	NP-88500	4	Own T165	HyF	H	4.89–5.8	Own T165	O4IH	234	355	Co	TX	.....	⅄x2 ⅄x6 1/2	C
65	.....B-2-FL	.....	128	152	9500	.....	6.00/20‡	6.50/20	Own T-178	6–3 ⅄x4 1/4	236	6.6	192	109–3600	4–2 1/2x5.04	N	NP-39760	4	Own T178	HyF	H	5.6 –6.8	Own T178	O4IH	336	479	...	TX	60	.21x2 3/4x7	C
66	.....B-2-F	.....	128	170	13500	.....	6.00/20‡	8.25/20♣	Own T-178	6–3 ⅄x4 1/4	236	6.6	192	109–3600	4–2 1/2x5.04	N	NP-39760	4	Own T178	HyF	H	5.6 –6.8	Own T178	O4IH	336	479	...	TX	60	.21x2 3/4x7	C

¶—8.25/20 front tires are required when 9.00/20 dual rears are used.
**—Pick-up truck; panel delivery 1360.
●—Includes cab.

::—Own Loadmaster engine available on models TJ-TK-TL at extra cost.
▫—5.43 axle available on Models TJ-TK-TL and 2-speed axle available on TVS-TWS-TYS-TP-TPS-TR-TRS-TS-TSS-TV-TW-TY-TX.
•—Front only, rear 8.25/16.

‡—Front only: Rear 6.50/20S.
♣—7.50/20 can be used on the front with no decrease in G.V.W. when 8.25/20 are used on dual rear wheels.
■—Available with optional tires and axles for less G.V.W. rating.
‡‡—Also available with Cummins HRB600, HRBB600, and NHB600.

†—Forward control Chassis for Door-to-Door delivery bodies. These chassis do not have cowl.
††—Also available in 5.14 ratio.
△—Front only: Rear 7.00/16S.
‡—1 Front 1.375x1.312; 3 Center 1.375x.870; 1 Rear 1.500x1.499.
§—4-speed transmission available.

††—Diameter: (Average) Front, 2.6858; Front Center, 2.7168; Rear Center, 2.7478; Rear, 2.7788; Total length, 5 3/4.
▼—Includes spare tire, full fuel tank and cooling system.
⅄—For only single rear; Dual rear are 7.50/20.
▼▼—Propeller shaft type available at extra cost.

(Turn to Page 84, Please)

THE BODY OF TOMORROW— TODAY

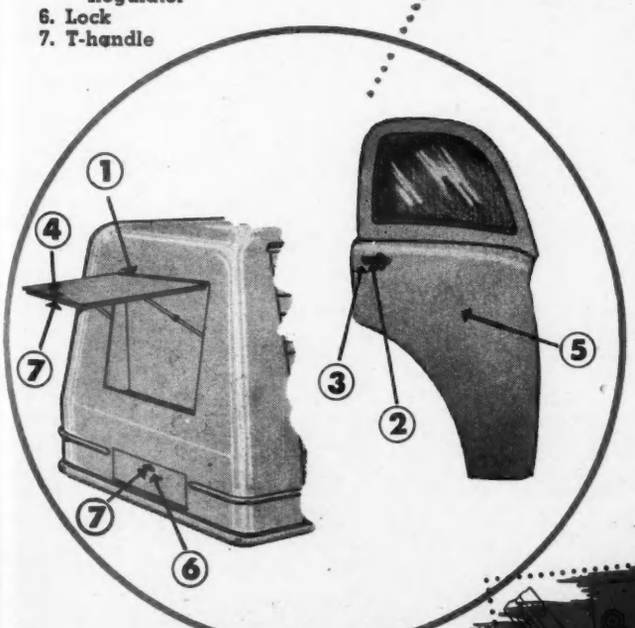
Special body design copyrighted by A. M. Westberg

specialized body designs

FROM PRE-FAB PARTS

Numbers indicate Hansen Hardware and location on body of special design:

1. Continuous Hinge.
2. Extension Lock.
3. Offset Handle.
4. Lock.
5. Window Regulator
6. Lock
7. T-handle



Numbers on cutouts in inset above show location of Hansen Hardware. Panel at right shows Hansen products identified by number.

ILLUSTRATED is a specially designed body styled so that it can be made thruout from pre-fabricated parts. The adaptability of Hansen Hardware to such special designs is shown, although it can be applied to a wide range of body requirements.

Noted for its simplicity, ease of application and dependability, Hansen keeps pace with the modern trend with designs that have remained basic thru the years. Preferred as the "hardware for hard wear," it meets the exacting conditions of commercial body service.

Details about these special body designs and CATALOG on request.

A. L. HANSEN MFG. CO.
5047 RAVENSWOOD AVE., CHICAGO 40, ILL.

(Continued from Page 82)

Line Number	MAKE AND MODEL	Chassis List Price	WHEELBASE Minimum Standard	WHEELBASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear: Standard Front and Rear	TIRE SIZES: Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings: Number Diameter and Length	Governor Standard	TRANSMISSION: Make and Model	Forward Speeds	REAR AXLE: Make and Model	Gear and Type	Drive & Torque	Gear Ratio Range in High	FRONT AXLE: Make and Model	BRAKES SERVICE: Make Location Type Operation	Lining Area	Drum Area	Drum Material	Hand Location Type	C-A Dimensions (Min. Std. W. B.)	FRAME: Side Rail Dimensions	Type
	Dodge—Cont'd.																														
1	B-2-FA		128	170	13500		6.50/20	7.50/20♦	Own T-178	6–3 7/16 x4 1/4	236	6.6	192	109–3600	4–2 1/2 x5.04	Y	NP-39760	4	Eat A4-1350	SFd	H	5.83–8.11	Own T178	O4IH	336	479	. . .	TX	60	.21x3 3/4 x7	C
2	B-2-G		128	192	14500		6.50/20¶	8.25/20	Own TX-178	6–3 7/16 x4 1/4	236	6.6	192	109–3600	4–2 1/2 x5.04	N	NP-88570	4	Own TX-178	HyF	H	5.6 –6.8	Own T-178	O4IH	336	479	Co	TX	60	.21x2 3/4 x8	C
3	B-2-GA		128	192	14500		6.50/20¶	8.25/20	Own TX-178	6–3 7/16 x4 1/4	236	6.6	192	109–3600	4–2 1/2 x5.04	Y	NP-88570	4	Eat A5-1350	SFd	H	5.8 –8.8	Own TX-178	O4IH	336	479	Co	TX	60	.21x2 3/4 x8	C
4	B-2-GM		107	161	14750		6.50/20	8.25/20	Own TX-182	6–3 7/16 x4 1/4	236	6.6	192	109–3600	4–2 1/2 x5.04	N	NP-88850	4	Own TX-182	HyF	H	5.6 –6.8	Own TX-182	O4IH	336	479	Co	TX	60	.21x2 3/4 x8	C
5	B-2-GMA		107	161	14750		6.50/20	8.25/20	Own TX-182	6–3 7/16 x4 1/4	236	6.6	192	109–3600	4–2 1/2 x5.04	Y	NP-88850	4	Eat A5-1350	SFd	H	5.8 –8.8	Own TX-182	O4IH	336	479	Co	TX	60	.21x2 3/4 x8	C
6	B-2-H		128	192	16000		7.50/20	8.25/20	Own T-192	6–3 7/16 x4 1/4	236	6.6	192	109–3600	4–2 1/2 x5.04	N	NP-88570	4	Own T-192	HyF	H	6.2 –6.8	Own T-192	O4IHV	336	479	Co	TX	60	.21x2 3/4 x8	C
7	B-2-HA		128	192	16000		7.50/20	8.25/20	Own T-192	6–3 7/16 x4 1/4	236	6.6	192	109–3600	4–2 1/2 x5.04	Y	NP-88570	4	Eat A5-1350	SFd	H	5.8 –8.8	Own T-192	O4IHV	336	479	Co	TX	60	.21x2 3/4 x8	C
8	B-2-HM		107	161	16250		7.50/20	8.25/20	Own T-194	6–3 7/16 x4 1/4	236	6.6	192	109–3600	4–2 1/2 x5.04	N	NP-88850	4	Own T-194	HyF	H	6.2 –6.8	Own T-194	O4IHV	336	479	Co	TX	60	.21x2 3/4 x8	C
9	B-2-HMA		107	161	16250		7.50/20	8.25/20	Own T-194	6–3 7/16 x4 1/4	236	6.6	192	109–3600	4–2 1/2 x5.04	Y	NP-88850	4	Eat A5-1350	SFd	H	5.8 –8.8	Own T-194	O4IHV	336	479	Co	TX	60	.21x2 3/4 x8	C
10	B-2-HH		128	192	16000		7.50/20	8.25/20	Own T-192	6–3 7/16 x4 1/4	236	6.6	192	109–3600	4–2 1/2 x5.04	N	NP-88570	4	Own T-192	HyF	H	6.2 –6.8	Own T-192	O4IHV	336	479	Co	TX	60	.21x2 3/4 x8	C
11	B-2-HHA		128	192	16000		7.50/20	8.25/20	Own T-192	6–3 7/16 x4 1/4	236	6.6	192	109–3600	4–2 1/2 x5.04	Y	NP-88570	4	Eat A5-1350	SFd	H	5.8 –8.8	Own T-192	O4IHV	336	479	Co	TX	60	.21x2 3/4 x8	C
12	B-2-HHM		107	161	16250		7.50/20	8.25/20	Own T-194	6–3 7/16 x4 1/4	236	6.6	192	109–3600	4–2 1/2 x5.04	N	NP-88850	4	Own T-194	HyF	H	6.2 –6.8	Own T-194	O4IHV	336	479	Co	TX	60	.21x2 3/4 x8	C
13	B-2-HHMA		107	161	16250		7.50/20	8.25/20	Own T-194	6–3 7/16 x4 1/4	236	6.6	192	109–3600	4–2 1/2 x5.04	Y	NP-88850	4	Eat A5-1350	SFd	H	5.8 –8.8	Own T-194	O4IHV	336	479	Co	TX	60	.21x2 3/4 x8	C
14	B-2-JL		128	212	17000		6.00/20	9.00/20	Own T-180	6–3 7/16 x4 1/2	250	6.6	204	114–3600	4–2 1/2 x5.04	N	NP-88700	5	Own T-180	HyF	H	6.2 –7.16	Own T-180	O4IHV	396	553	e	TX	60	1/4 x2 3/4 x8	P
15	B-2-JAL		128	212	17000		6.00/20	9.00/20	Own T-180	6–3 7/16 x4 1/2	250	6.6	204	114–3600	4–2 1/2 x5.04	Y	NP-88700	5	Eat A5-1350	SFd	H	5.8 –8.8	Own T-180	O4IHV	396	553	e	TX	60	1/4 x2 3/4 x8	P
16	B-2-J		128	212	17000		6.50/20	9.00/20	Own T-180	6–3 7/16 x4 1/2	250	6.6	204	114–3600	4–2 1/2 x5.04	N	NP-88700	5	Own T-180	HyF	H	6.2– 7.16	Own T-180	O4IHV	396	553	e	TX	60	1/4 x2 3/4 x8	P
17	B-2-JA		128	212	17000		6.50/20	9.00/20	Own T-180	6–3 7/16 x4 1/2	250	6.6	204	114–3600	4–2 1/2 x5.04	Y	NP-88700	5	Eat A5-1350	SFd	H	5.8 –8.8	Own T-180	O4IHV	396	553	e	TX	60	1/4 x2 3/4 x8	P
18	B-2-JML		107	161	17250		6.00/20	9.00/20	Own T-184	6–3 7/16 x4 1/2	250	6.6	204	114–3600	4–2 1/2 x5.04	N	NP-88920	5	Own T-184	HyF	H	6.2 –7.16	Own T-184	O4IHV	396	553	e	TX	60	1/4 x2 3/4 x8	P
19	B-2-JMAL		107	161	17250		6.00/20	9.00/20	Own T-184	6–3 7/16 x4 1/2	250	6.6	204	114–3600	4–2 1/2 x5.04	Y	NP-88920	5	Eat A5-1350	SFd	H	5.8 –8.8	Own T-184	O4IHV	396	553	e	TX	60	1/4 x2 3/4 x8	P
20	B-2-JM		107	161	17250		6.50/20	9.00/20	Own T-184	6–3 7/16 x4 1/2	250	6.6	204	114–3600	4–2 1/2 x5.04	N	NP-88920	5	Own T-184	HyF	H	6.2 –7.16	Own T-184	O4IHV	396	553	e	TX	60	1/4 x2 3/4 x8	P
21	B-2-JMA		107	161	17250		6.50/20	9.00/20	Own T-184	6–3 7/16 x4 1/2	250	6.6	204	114–3600	4–2 1/2 x5.04	Y	NP-88920	5	Eat A5-1350	SFd	H	5.8 –8.8	Own T-184	O4IHV	396	553	e	TX	60	1/4 x2 3/4 x8	P
22	B-2-KL		128	212	17500		8.25/20	9.00/20	Own TX-180	6–3 7/16 x4 1/2	250	6.6	204	114–3600	4–2 1/2 x5.04	Y	NP-88700	5	Eat 16500	SFd	H	6.14–9.04	Own T-180	O4IHV	396	553	e	TX	60	1/4 x2 3/4 x8	P
23	B-2-KAL		128	212	17500		8.25/20	9.00/20	Own TX-180	6–3 7/16 x4 1/2	250	6.6	204	114–3600	4–2 1/2 x5.04	N	NP-88700	5	Tim H-101	HyF	H	6.8 –7.2	Own T-180	O4IHV	396	553	e	TX	60	1/4 x2 3/4 x8	P
24	B-2-K		128	212	17500		8.25/20	9.00/20	Own TX-180	6–3 7/16 x4 1/2	250	6.6	204	114–3600	4–2 1/2 x5.04	N	NP-88700	5	Tim H-101	HyF	H	6.8 –7.2	Own T-180	O4IHV	396	553	e	TX	60	1/4 x2 3/4 x8	P
25	B-2-KA		128	212	17500		8.25/20	9.00/20	Own TX-180	6–3 7/16 x4 1/2	250	6.6	204	114–3600	4–2 1/2 x5.04	Y	NP-88700	5	Eat 16500	SFd	H	6.14–9.04	Own T-180	O4IHV	396	553	e	TX	60	1/4 x2 3/4 x8	P
26	B-2-KML		107	161	17750		8.25/20	9.00/20	Own TX-184	6–3 7/16 x4 1/2	250	6.6	204	114–3600	4–2 1/2 x5.04	N	NP-88920	5	Eat 16500	SFd	H	6.14–9.04	Own T-184	O4IHV	396	553	e	TX	60	1/4 x2 3/4 x8	P
27	B-2-KMAL		107	161	17750		8.25/20	9.00/20	Own TX-184	6–3 7/16 x4 1/2	250	6.6	204	114–3600	4–2 1/2 x5.04	Y	NP-88920	5	Tim H-101	HyF	H	6.8 –7.2	Own T-184	O4IHV	396	553	e	TX	60	1/4 x2 3/4 x8	P
28	B-2-KM		107	161	17750		8.25/20	9.00/20	Own TX-184	6–3 7/16 x4 1/2	250	6.6	204	114–3600	4–2 1/2 x5.04	N	NP-88920	5	Tim H-101	HyF	H	6.8 –7.2	Own T-184	O4IHV	396	553	e	TX	60	1/4 x2 3/4 x8	P
29	B-2-KMA		107	161	17750		8.25/20	9.00/20	Own TX-184	6–3 7/16 x4 1/2	250	6.6	204	114–3600	4–2 1/2 x5.04	Y	NP-88920	5	Eat 16500	SFd	H	6.14–9.04	Own T-184	O4IHV	396	553	e	TX	60	1/4 x2 3/4 x8	P
30	B-2-R		130	229	19000		7.50/20	9.00/20	Own T-186	6–3 3/4 x4 5/8	306	6.4	245	122–3200	7–3x11.23	N	NP-88220	5	Tim H-100	HyF	H	** –6.8	Own T-186	O4IHV	397	609	e	TX	60	1/4 x2 3/4 x9	P
31	B-2-RA		130	229	19000		7.50/20	9.00/20	Own T-186	6–3 3/4 x4 5/8	306	6.4	245	122–3200	7–3x11.23	Y	NP-88220	5	Tim H-300	HFd	H	6.16–8.19	Own T-186	O4IHV	397	609	e	TX	60	1/4 x2 3/4 x9	P
32	B-2-T		130	190	21000		7.50/20△	10.00/20	Own T-188	6–3 3/4 x5	331	6.4	270	128–3000	7–3x11.23	N	NP-88450	5	Tim L-100	HyF	H	6.8 –8.2	Tim 32500	O4IHV	425	666	e	TX	60	1/4 x3x10	P
33	B-2-TA		130	190	21000		7.50/20△	10.00/20	Own T-188	6–3 3/4 x5	331	6.4	270	128–3000	7–3x11.23	Y	NP-88450	5	Tim L-300	HFd	H	6.3 –9.18	Tim 32500	O4IHV	425	666	e	TX	60	1/4 x3x10	P
34	B-2-V		130	190	23000		9.00/20†	11.00/20	Own TX-188	6–3 3/4 x5	331	6.4	270	128–3000	7–3x11.23	N	NP-88450	5	Tim Q-100	HyF	H	6.8 –7.8	Tim 32500	O4IHV	486	770	e	TX	60	1/4 x3x10	P
35	B-2-VA		130	190	23000		9.00/20†	11.00/20	Own TX-188	6–3 3/4 x5	331	6.4	270	128–3000	7–3x11.23	Y	NP-88450	5	Tim Q-300	HFd	H	6.42–8.38	Tim 32500	O4IHV	486	770	e	TX	60	1/4 x3x10	P
36	B2YL, YAL, Y, YA		130	190	28000		9.00/20†	11.00/22	Own T-190	6-4x5	377	6.5	330	154–3000	7–3x11.23	Y	Cla-290-V2	5	Tim Q-100	HyF	H	††	Tim 32500	O4IHV	486	770	e	TX	60	1/4 x3 1/4 x10	P
	School Buses																														
37	B-2-FS		152	170	13500		6.50/20	7.50/20	Own TS-178	6–3 7/16 x4 1/4	236	6.6	192	109–3600	4–2 1/2 x5.04	N	NP-39760	4	Own TS-178	HyF	H	5.6 –6.8	Own TX-178	O4IHV	336	479	Co	TX	. . . .	1/4 x2 3/4 x7	C
38	B2-GS		192	192	15000		7.50/20	8.25/20-10	Own TXS-178	6–3 7/16 x4 1/4	236	6.6	192	109–3600	4–2 1/2 x5.04	N	NP-88570	4	Own TX-178	HyF	H	5.6 –6.8	Own TX-178	O4IHV	336	479	Co	TX	. . . .	1/4 x2 1/2 x8	C
39	B2-HHS		192	192	15500		7.50/20	8.25/20	Own TS-192	6–3 7/16 x4 1/4	236	6.6	192	109–3600	4–2 1/2 x5.04	N	NP-88570	4	Own TS-192	HyF	H	6.2 –6.8	Own T-192	O4IHV	336	479	Co	TX	. . . .	1/4 x2 1/2 x8	C
40	B-2-JS		212	212	17000		7.50/20	8.25/20	Own TS-180	6–3 7/16 x4 1/2	250	6.6	204	114–3600	4–2 1/2 x5.04	N	NP-88700	5	Own TS-180	HyF	H	6.2 –7.16	Own T-180	O4IHV	396	553	e	TX	. . . .	1/4 x2 3/4 x8	P
41	B-2-RS		229	229	19000		8.25/20	9.00/20	Own TS-186	6–3 3/4 x4 5/8	306	6.4	245	122–3200	7–3x11.23	Y	NP-88220	5	Tim H100	HyF	H	6.8	Own T-186	O4IHV	397	609	e	TX	. . . .	1/4 x2 3/4 x9	P
42	Duplex. . . . . T		136	220	20000	6600	8.25/20D	9.00/20	Her JXD	6-4x4 1/4	320	6.2	240	113–3000	7–2 1/2 x10	Y	Fu 5B330	5	Tim H100	B	H	** –7.20	Tim 32502	L4IHV	420	654	A	TX	57 1/2	9 1/2 x3 1/2 x	C
43	TH-404		136	220	20000	6900	8.25/20D	9.00/20	Her WXLC3	6–4 1/4 x4 3/4	404	5.8	312	139–2600	7–2 5/8 x13 1/4	Y	Fu-5A430	5	Tim H-300	DF	H	6.13–8.15	Tim 32502	L4IHV	420	654	A	TX	49 1/4	9 1/2 x3 1/2 x	C
44	R		136	220	28000	8820	9.00/20D	10.00/20	Her WXLC-3	6–4 1/4 x4 3/4	404	5.8	312	139–2600	7–2 5/8 x13 1/4	Y	Fu 5A43	5	Tim Q300	DF	R	6.53–8.53	Tim FD900	L4IHV	730	1016	A	TX	49 1/4	9 1/2 x3 1/2 x	C
45	SH-501		172	208	28000	9500	10.00/20	11.00/20	Her RXB	6–4 1/2 x5 1/4	501	5.4	360	137–2400	7–3x13 1/4	Y	Fu 5A620	. .	Tim Q200	2F	R	** –7.77	Tim FD900	BW4IA	730	1016	A	TX	61 1/4	9 1/2 x3 1/2 x	C
46	JHA		148	220	32000	9800	10.00/20D	11.00/20	Her RXB	6–4 1/2 x5 1/4	501	5.4	360	137–2400	7–3x13 1/4	Y	Fu 5A620	5	Tim S200	2F	R	** –9.83	Tim FE900	BW4IA	912	1311	A	TX	61 1/4	10 1/4 x3 1/2 x	C
47	JH-558		148	220	32000	9800	10.00/20D	11.00/20	Her RXLD	6–4 3/4 x5 1/4	558	6.3	430	154–2400	7–3 1/2 x13 1/4	Y	Fu-5C650	5	Tim S-300	DF	R	6.41–8.37	Tim FE900	BW4IA	912	1311	A	TX	60 3/4	10 1/4 x3 1/2 x	C
48	KH		148	220	34000	10500	11.00/20D	11.00/20	Her RXC	6–4 1/2 x5 1/4	529	5.4	395	132–2200	7–3x13 1/4	Y	Fu 5A620	5	Tim U-200	2F	R	** –9.83	Tim FE900	BW4IA	912	1311	A	TX	60 3/4	10 1/4 x3 1/2 x	C
49	LH		148	220	37000	11300	11.00/20D	11.00/20	Her RXLD	6–4 3/4 x5 1/4	558	5.4	430	154–2400	7–3 1/4 x13 1/4	Y	Fu 5C650	5	Tim U-200	2F	R	** –9.83	Tim FE900	BW4IA	912	1311	A	TX	60 3/4	10 1/4 x3 1/2 x	C
50	Federal. . . . 1501T		136	196	12000	▲4880	6.50/20S	7.50/20S	Here QXLDF	6–3 7/16 x4 1/4	236	. . .	190	90–3200	7–2 1/2 x10	N	WG T9	4	T53547DPH	BF	H	5.66	Tim 30000H X	L4IHV	310	482	a	TX	60 1/2	9x3x1/4	T
51	. . . . . 1601T		136	250	16000	▲5370	7.00/20D	7.50/20	Her QXLDF	6–3 7/16 x4 1/4	236	. . .	190	90–3200	7–2 1/2 x10	N	WG T9	4	T 53547DPH	BF	H	** –5.66	Tim 30000HX	L4IHV	310	482	a	TX	60 1/2	9 1/2 x3x	T
52	. . . . . 1602T		136	250	16000	▲5545	7.00/20D	8.25/20	Her QXLDF	6–3 7/16 x4 1/4	236	. . .	190	90–3200	7–2 1/2 x10	N	WG T9	4	Tim E300DPH	dF	H	6.13–8.10	Tim 30000HX	L4IHV	310	482	a	TX	60 1/2	9 1/2 x3x	T
53	. . . . . 1801T		136	250	17500	▲5760	8.25/20D	8.25/20	Her JXBF	6–3 5/8 x4 1/4	263	. . .	192	98–3200	7–2 1/2 x10	N	WG T9‖	4	Tim E100DPH	SF	:H	** –6.20	Tim 30003H	LT4IHV	314	532	a	TX	60 1/2	9 1/2 x3x	T
54	. . . . . 1802T		136	250	17500	▲5890	8.25/20D	8.25/20	Her JXBF	6–3 5/8 x4 1/4	263	. . .	192	98–3200	7–2 1/2 x10	N	WG T9‖	4	Tim E300DPH	dF	:H	6.13–8.10	Tim 30003H	LT4IHV	314	532	a	TX	60 1/2	9 1/2 x3x	T
55	. . . . . 2501T		136	250	19000	▲6025	8.25/20D	9.00/20	Her JXCF	6–3 3/4 x4 1/4	282	. . .	212	103–3200	7–2 1/2 x10	N	WG T97‖	4	Tim H100DPH	SF	R	** –6.80	Tim 3100H	LT4IHV	346	583	a	TX	60 1/2	9 1/2 x3x	T
56	. . . . . 2502T		136	250	19000	▲6105	8.25/20D	9.00/20	Her JXCF	6–3 3/4 x4 1/4	282	. . .	212	103–3200	7–2 1/2 x10	N	WG T97‖	4	Tim H300DPH	dF	R	6.13–8.15	Tim 3100H	LT4IHV	346	583	a	TX	60 1/2	9 1/2 x3x	T
57	. . . . . 2901T		136	250	21500	▲6535	9.00/20D	10.00/20	Her JXDF	6–4x4 1/4	320	. . .	250	115–3100	7–2 1/2 x10	Y	Cla 205V▼	5	Tim I.100DPH	SF	R	** –6.83	Tim 32514H	LT4IHV	466	820	a	TX	60 1/2	9 1/2 x3x	T
58	. . . . . 2902T		136	250	21500	▲6695	9.00/20D	10.00/20	Her JXDF	6–4x4 1/4	320	. . .	250	115–3100	7–2 1/2 x10	Y	Cla 205V▼	5	Tim L300DPH	dF	R	6.32–8.22	Tim 32514H	LT4IHV	466	820	a	TX	60 1/2	9 1/2 x3x	T
59	. . . . . 2904T		136	250	23500	▲7260	9.00/20D	10.00/20	Her JXDF	6–4x4 1/4	320	. . .	250	115–3100	7–2 1/2 x10	Y	Cla 205V▲▼	15	Tim Q-100	SF	R	** –6.83	Tim 32514H	LT4IHV	466	820	a	TD	76 1/2	9 1/2 x3x	T
60	. . . . . 3001T		136	250	22000	▲6575	9.00/20D	10.00/20	Here JXLDF	6–4x4 1/2	339	. . .	272	131–3200	7–2 1/2 x10	Y	Cla 205V▼	5	Tim L100DPH	SF	R	** –6.83	Tim 32514H	LT4IHV	466	820	a	TX	60 1/2	9 1/2 x3x	T
61	. . . . . 3002T		136	250	22000	▲6735	9.00/20D	10.00/20	Here JXLDF	6–4x4 1/2	339	. . .	272	131–3200	7–2 1/2 x10	Y	Cla 205V▼	5	Tim L300DPH	dF	R	6.32–8.22	Tim 32514H	LT4IHV	466	820	a	TX	60 1/2	9 1/2 x3x	T
62	. . . . . 3004T		136	250	24000	▲7300	9.00/20D	10.00/20	Here JXLDF	6–4x4 1/2	339	. . .	272	131–3200	7–2 1/2 x10	Y	Cla 205V▼	15	Tim Q-100	SF	R	** –6.83	Tim 32514H	LT4IHV	466	820	a	TD	76 1/2	9 1/2 x3x	T
63	. . . . . 35M		143	203	23000	6925	9.00/20D	10.00/20	Con T6371F	6–4 1/2 x4 5/8	371	. . .	297	144–3000	7–2 1/2 x13 1/2	Y	Cla 290VO	5	Tim L100DPH	SF	R	** –6.83	Tim 32514H	LT4IHV	466	820	a	TX	60 1/2	10 1/4 x3 1/4 x	T
64	. . . . . 35M2		143	203	23000	7115	9.00/20D	10.00/20	Con T6371F	6–4 1/2 x4 5/8	371	. . .	297	144–3000	7–2 1/2 x13 1/2	Y	Cla 290VO	5	Tim L300DPH	dF	R	6.32–8.22	Tim 32514H	LT4IHV	466	820	a	TX	60 1/2	10 1/4 x3 1/4 x	T
65	. . . . . 45M		143	203	27000	8005	10.00/20D	10.00/24	Con T6427F*	6–4 1/4 x4 1/4	427	. . .	342	166–3000	7–2 1/4 x13 1/4	Y	Cla 290VO	5	Tim Q100P	SF	R	** –6.83	Tim FD-900	TW4IA	606	933	a	TD	60 1/2	10 1/4 x3 1/4 x	T
66	. . . . . 45M2		143	203	27000	8380	10.00/20D	10.00/24	Con T6427F*	6–4 1/4 x4 1/4	427	. . .	342	166–3000	7–2 1/4 x13 1/4	Y	Cla 290VO	5	Tim Q300P	dF	R	6.53–8.53	Tim FD-900	TW4IA	606	933	a	TD	60 1/2	10 1/4 x3 1/4 x	T
67	. . . . . 55M2		143	203	30000	8635	11.00/22D	11.00/24	Con T6427F*	6–4 1/4 x4 1/4	427	. . .	342	166–3000	7–2 1/4 x13 1/4	Y	Cla 290VO	5	Tim S300P	HyF	R	6.53–8.53	Tim FD-900	Tw4IA	722	1051	a	TD	60 1/2	10 1/4 x3 1/4 x	T
68	. . . . . 55MA		155	203	30000	8765	11.00/22D	11.00/24	Con T6427F*	6–4 1/4 x4 1/4	427	. . .	347	166–3000	7–2 1/4 x13 1/4	Y	Cla 290V▲	15	Tim S-200P	2F	R	** –7.08	Tim FD-900	TW4IA	722	1051	a	TD	72 1/2	10 1/4 x3 1/4 x	T
69	. . . . . 60MA		155	203	32000	9600	11.00/22D	11.00/24	Con 22RF*	6–4 1/2 x5 1/4	501	. . .	385	148–2400	7–2 3/4 x14 1/2	Y	Fu 5A65‡	15	Tim 8200P	2F	R	** –7.08	Tim FD-900	Tw4IA	722	1051	a	FX	72 1/2	10 1/4 x3 1/4 x	T
70	. . . . . 60M2		143	203	32000	9370	11.00/22D	11.00/24	Con 22RF*	6–4 1/2 x5 1/4	501	. . .	385	148–2400	7–2 3/4 x14 1/2	Y	Fu 5A65‡	5	Tim 8300P	HyF	R	6.53–8.53	Tim FD-900	Tw4IA	722	1051	a	TX	60 1/2	10 1/4 x3 1/4 x	T
71	. . . . . 65M2		141	201	33000	9995	11.00/22D	11.00/24	Con R6602F*	6–4 7/16 x5 1/4	602	. . .	466	205–3000	7–3 1/4 x14 1/2	Y	Fu 5A65‡	5	Tim 8300P	HyF	R	6.53–8.53	Tim FE-900	Ws4IA	722	1051	a	TX	60 1/2	10 1/4 x3 1/4 x	T
72	. . . . . 65MA		153	201	33000	10225	11.00/22D	11.00/24	Con R6602F*	6–4 7/16 x5 1/4	602	. . .	466	205–3000	7–3 1/4 x14 1/2	Y	Fu 5A65‡	15	Tim 8200P	HyF	R	** –7.08	Tim FE-900	Ws4IA	722	1051	a	TX	72 1/2	10 1/4 x3 1/4 x	T

†—Front only; Rear 10.00/20.
△—Front only; Rear 8.25/20.
‡—For wheelbases below 196"—9x3x1/4.

††—6.8–9.23 for Models YL and Y. 6.42–8.38 standard on YAL and YA, but 7.27/9.49 ratios are also available on these two models.
▲—Includes cab.

7.4 ratio available for Y model and 6.41–8.37 also available for YA model.
‖—Five speed transmission obtainable
¶—Front only; Rear 7.50/20.

•—For shorter wheelbases—10x3 1/16 x1/4.
♦—Auxiliary trans. Spicer 6231B, three forward speeds.
†—For only single rear; Dual rear are 7.50/20.

‡—Auxiliary trans. Spicer 703F, three forward speeds.
*—Diesel engine obtainable.
‡—Radius rods obtainable. ▼—Overdrive optional.

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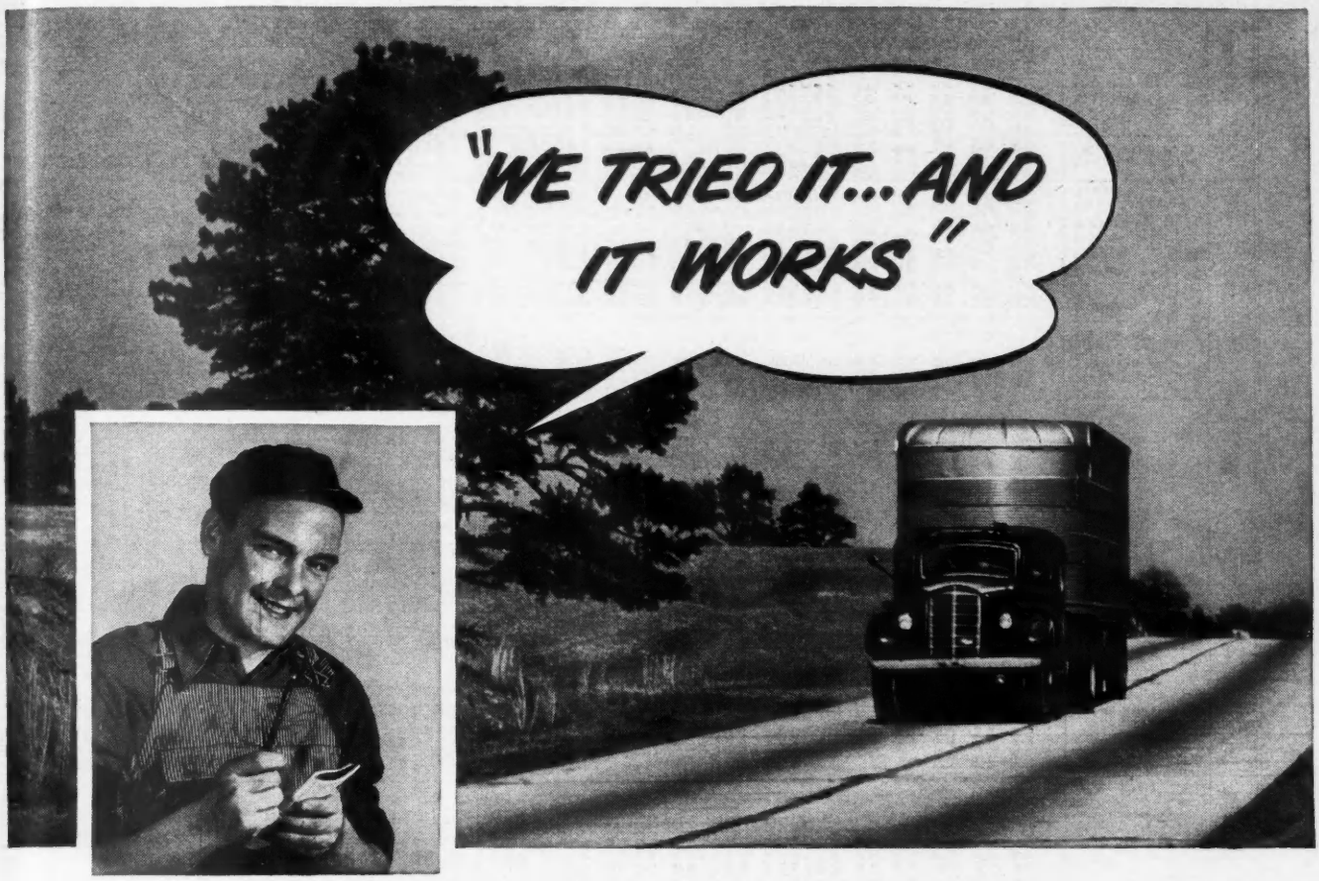


"Now every unit in our fleet is rolling at a cost-per-mile reduction of one full cent!

"Naturally we expected solid benefits when we called in a Cities Service Fleet Lubrication Engineer—and he did even better than we expected. You can look at the results from the standpoint of reduced maintenance cost or improved performance. Either way they're pretty amazing."

"HERE'S HOW IT WORKED FOR US...

"Step No. 1—was a thorough engine cleaning of every unit in the fleet with an exclusive Cities Service product—Cisco Solvent. That's an engine cleaner that beats them all.

"Step No. 2—was testing with a Cities Service Power Prover. This amazing instrument hooks up to the exhaust. It tells you in a couple of minutes the where, what and how of combustion efficiency.

"Step No. 3—was a full crankcase of Cities Service Heavy Duty motor oil. It's a motor oil that can't be topped as far as we are concerned for tough all-around heavy duty service.

"From then on—as these units went back into service—we watched our operation charts carefully. We set up a rigid oil change system. This was gauged on the type of operation, climate and driving conditions. This system was designed to provide the maximum amount of lubrication protection before contamination made oil changes necessary.

"It was as simple as that! In two months' time costs went down all along the line... and they stayed down."

A complete new line of automotive lubricants, comprising Regular, Premium and Heavy Duty oils for Gasolene and Diesel Engines, also Regular and Multi-Purpose Gear Oils and Greases.

CITIES SERVICE

QUALITY PETROLEUM PRODUCTS

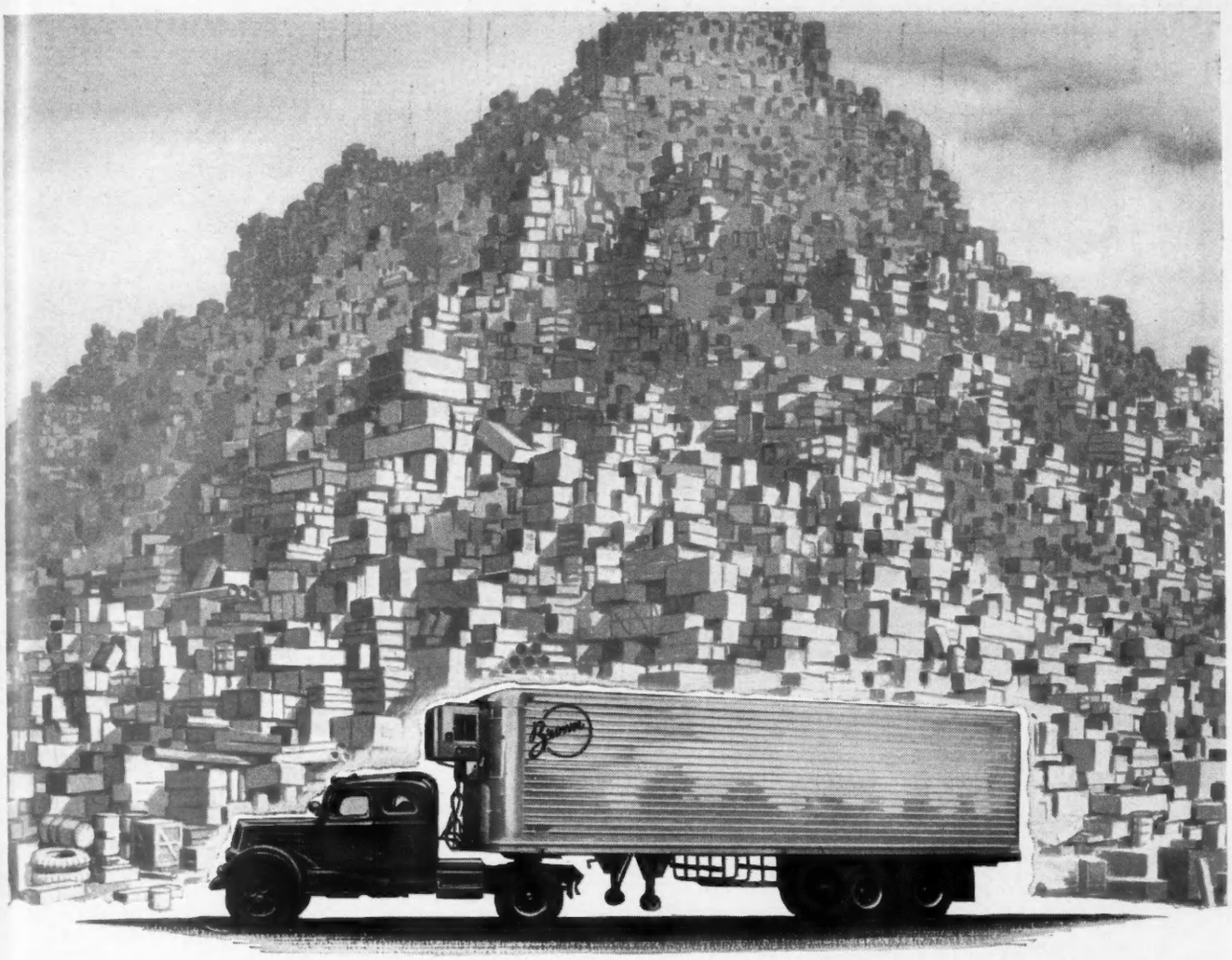
(Continued from Page 84)

Line Number	MAKE AND MODEL	Chassis List Price	WHEEL-BASE Minimum Standard	WHEEL-BASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear Standard Front and Rear	TIRE SIZES Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings Number Diameter and Length	Governor Standard	TRANSMISSION Make and Model	Forward Speeds	REAR AXLE Make and Model	Gear and Type	Drive & Torque	Gear Ratio Range in High	FRONT AXLE Make and Model	BRAKES SERVICE Make Location Type Operation	Lining Area	Drum Area	Drum Material	Hand Location Type	C-A Dimensions (Min. Std. W. B.)	FRAME Side Rail Dimensions	Type
	Ford F-1																														
1	Cowl....9HC-84	930	114	114	4700	2226	6.00/16-4	6.50/16-6	8	3.3x4.4	226	6.8	180	95-3300	4-2.87x5.0	N	Own 8C	3	Own 8C	H½	H	3.92–4.27	Own 8C	O4IH	178	259	Co	M2	40.06	5.92x2½x15	T
2	Cowl....9RC-84	960	114	114	4700	2266	6.00/16-4	6.50/16-6	8	3⅛x3¾	239	6.8	180	100-3800	3-2.49x5.2	N	Own 8C	3	Own 8C	H½	H	3.92–4.27	Own 8C	O4IH	178	259	Co	M2	40.06	5.92x2½x15	T
	F-2																														
3	Cowl... 9HD-84	1045	122	122	5700	2616	6.50/16-6	7.50/16-6	8	3.3x4.4	226	6.8	180	95-3300	4-2.87x5.0	N	Own 51Y	4	Own 8D	SF	H	** –4.86	Own 8D	O4IH	167	264	Co	M2	48.06	6x2¼x.19	T
4	Cowl....9RD-84	1075	122	122	5700	2656	6.50/16-6	7.50/16-6	8	3⅛x3¾	239	6.8	180	100-3800	3-2.49x5.2	N	Own 51Y	4	Own 8D	SF	H	** –4.86	Own 8D	O4IH	167	264	Co	M2	48.06	6x2¼x.19	T
	F-3																														
5	Cowl....9HY-84	1120	122	122	6800	2849	7.00/17-6S	7.50/17-8S	8	3.3x4.4	226	6.8	180	95-3300	4-2.87x5.0	N	Own 51Y	4	Own 8Y	SF	H	** –4.86	Own 8D	O4IH	188	308	Co	M2	48.06	6x2¼x.19	T
6	Cowl....9RY-84	1150	122	122	6800	2889	7.00/17-6S	7.50/17-8S	8	3⅛x3¾	239	6.8	180	100-3800	3-2.49x5.2	N	Own 51Y	4	Own 8Y	SF	H	** –4.86	Own 8D	O4IH	188	308	Co	M2	48.06	6x2¼x.19	T
	F-3 Parcel Dlvy.																														
7	w/s.....9HJ	1375	104	104	7800	3030	7.00/16-6	7.50/17-8S	Own 8HJ	6.3.3x4.4	226	6.8	180	95-3300	4-2.87x5.0	N	Own 8J	3	Own 8J	SF	H	** –4.86	Own 8J	O4IH	215	330	C	TX	82●	6x2¼x.19	T
8	w/s.....9H2J	1390	122	122	7800	3100	7.00/16-6	7.50/17-8S	Own 8HJ	6.3.3x4.4	226	6.8	180	95-3300	4-2.87x5.2	N	Own 8J	3	Own 8J	SF	H	** –4.86	Own 8J	O4IH	215	330	C	TX	100†	6x2¼x.19	T
	F-4																														
9	Cowl...9HTL-84	1175	134	134	10000	3457	7.00/20-8S	7.00/18-8	Own 7HT	6.3.3x4.4	226	6.8	180	95-3300	4-2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–5.83	Own 7RTL	O4IH	302	506	Co	TX	60.06	7x2¾x.21	T
10	Cowl...9RTL-84	1205	134	134	10000	3497	7.00/20-8S	7.00/18-8	Own 8RT	8.3⅛x3¾	239	6.8	180	100-3800	3-2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–5.83	Own 7RTL	O4IH	302	506	Co	TX	60.06	7x2¾x.21	T
	F-5																														
11	Cowl....9HT-84	1220	134	134	14000	3646	6.50/20-6	7.50/20-8	Own 7HT	6.3.3x4.4	226	6.8	180	95-3300	4-2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RT	O4IH	302	506	Co	TX	60.06	7x2¾x.21	T
12	Cowl....9RT-84	1250	134	134	14000	3686	6.50/20-6	7.50/20-8	Own 8RT	8.3⅛x3¾	239	6.8	180	100-3800	3-2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RT	O4IH	302	506	Co	TX	60.06	7x2¾x.21	T
13	Cowl...9H8T-84	1250	158	158	14000	3796	6.50/20-6	7.50/20-8	Own 8RT	6.3.3x4.4	226	6.8	180	95-3300	4-2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RT	O4IH	302	506	Co	TX	60.06	7x2¾x.21	T
14	Cowl...9R8T-84	1280	158	158	14000	3836	6.50/20-6	7.50/20-8	Own 8RT	8.3⅛x3¾	239	6.8	180	100-3800	3-2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RT	O4IH	302	506	Co	TX	84.06	7x2¾x.21●	TL
15	Cowl...9H6T-84	1370	176	176	14000	3926	6.50/20-6	7.50/20-8	Own 7HT	6.3.3x4.4	226	6.8	180	95-3300	4-2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RT	O4IH	302	506	Co	TX	84.06	7x2¾x.21●	TL
16	Cowl...9R6T-84	1401	176	176	14000	3966	6.50/20-6	7.50/20-8	Own 8RT	8.3⅛x3¾	239	6.8	180	100-3800	3-2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RT	O4IH	302	506	Co	TX	84.06	7–2¾x.21●	TL
	F-5 C.O.E.																														
17	Cab...9HOW-81	1605	110	110	14000	4346	6.50/20-6	7.50/20-8	Own 8HW	6.3.3x4.4	226	6.8	180	95-3300	4-2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RT	O4IH	302	506	Co	TX	102.2	7.08x2.79x¾	TL●
18	Cab...9ROW-81	1635	110	110	14000	4386	6.50/20-6	7.50/20-8	Own 8RW	8.3⅛x3¾	239	6.8	180	100-3800	3-2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RT	O4IH	302	506	Co	TX	102.2	7.08x2.79x¾	TL●
19	Cab....9HW-81	1635	134	134	14000	4476	6.50/20-6	7.50/20-8	Own 8HW	6.3.3x4.4	226	6.8	180	95-3300	4-2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RW	O4IH	302	506	Co	TX	60.06	7x2¾ x.21●	TL
20	Cab....9RW-81	1665	134	134	14000	4516	6.50/20-6	7.50/20-8	Own 8RW	8.3⅛x3¾	239	6.8	180	100-3800	3-2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RW	O4IH	302	506	Co	TX	60.06	7x2¾ x.21●	TL
21	Cab...9H8W-81	1665	158	158	14000	4546	6.50/20-6	7.50/20-8	Own 8HW	6.3.3x4.4	226	6.8	180	95-3300	4-2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RW	O4IH	302	506	Co	TX	84.06	7.08x2.8x¾●	TL
22	Cab...9R8W-81	1695	158	158	14000	4586	6.50/20-6	7.50/20-8	Own 8RW	8.3⅛x3¾	239	6.8	180	100-3800	3-2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RW	O4IH	302	506	Co	TX	84.06	7.08x2.8x¾●	TL
	F-5 School Bus																														
23	Bus Cl..9H8T-84	1315	158	158	12000	3755	6.50/20-6	7.00/20-8	Own 7HT	6.3.3x4.4	226	6.8	180	95-3300	4-2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RTH	O4IH	302	506	Co	TX	108.1	7.08x2.8x¾●	TL
24	Bus Cl..9R8T-84	1345	158	158	12000	3795	6.50/20-6	7.00/20-8	Own 8RT	8.3⅛x3¾	239	6.8	180	100-3800	3-2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RTH	O4IH	302	506	Co	TX	128●	7x2¾x.21●	TL
25	Bus Cl..9H4T-84	1530	194	194	15000	4260	7.50/20-8	8.25/20-10	Own 7HT	6.3.3x4.4	226	6.8	180	95-3300	4-2.87x5.0	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RTH	O4IH	302	506	Co	TX	128●	7x2¾x.21●	TL
26	Bus Cl..9R4T-84	1560	194	194	15000	4300	7.50/20-8	8.25/20-10	Own 8RT	8.3⅛x3¾	239	6.8	180	100-3800	3-2.49x5.2	N	Own 41T	4	Own 8T	SF	H	5.14–6.67	Own 7RTH	O4IHV	302	506	Co	TX	164†	7.08x2.8x¾●	TL
	F-6																														
27	Cowl..9HTH-84	1610	134	134	16000	3980	7.50/20-8	8.25/20-10	Own 7HT	6.3.3x4.4	226	6.8	180	95-3300	4-2.87x5.0	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	60.06	7.08x2.8x¾●	TL
28	Cowl..9RTH-84	1640	134	134	16000	4020	7.50/20-8	8.25/20-10	Own 8RT	8.3⅛x3¾	239	6.8	180	100-3800	3-2.49x5.2	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	60.06	7.08x2.8x¾●	TL
29	Cowl..9MTH-84	1665	134	134	16000	4165	7.50/20-8	8.25/20-10	Own 8MTH	6.3.5x4.4	254	6.8	212	110-3400	4-2.87x5.0	Y	Own 8MTH	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	60.06	7.08x2.8x¾●	TL
30	Cowl..9H8TH-84	1640	158	158	16000	4050	7.50/20-8	8.25/20-10	Own 7HT	6.3.3x4.4	226	6.8	180	95-3300	4-2.87x5.0	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	60.06	7.08x2.8x¾●	TL
31	Cowl..9R8TH-84	1670	158	158	16000	4090	7.50/20-8	8.25/20-10	Own 8RT	8.3⅛x3¾	239	6.8	180	100-3800	3-2.49x5.2	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	84.06	7.08x2.8x¾●	TL
32	Cowl.9M8TH-84	1707	158	158	16000	4235	7.50/20-8	8.25/20-10	Own 8MTH	6.3.5x4.4	254	6.8	212	110-3400	4-2.87x5.0	Y	Own 8MTH	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	84.06	7.08x2.8x¾●	TL
33	Cowl.9H6TH-84	1623	176	176	16000	4130	7.50/20-8	8.25/20-10	Own 7HT	6.3.3x4.4	226	6.8	180	95-3300	4-2.87x5.0	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	84.06	7.08x2.8x¾●	TL
34	Cowl.9R6TH-84	1655	176	176	16000	4170	7.50/20-8	8.25/20-10	Own 8RT	8.3⅛x3¾	239	6.8	180	100-3800	3-2.49x5.2	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	84.06	7.08x2.8x¾●	TL
35	Cowl.9M6TH-84	1748	176	176	16000	4315	7.50/20-8	8.25/20-10	Own 8MTH	6.3.5x4.4	254	6.8	212	110-3400	4-2.87x5.0	Y	Own 8MTH	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RTH	O4IHV	302	506	Co	TX	102.3	7.08x2.8x¾●	TL
	F-6 C.O.E.																														
36	Cab.9HOWH-81	1990	110	110	16000	4549	7.50/20-8	8.25/20-10	Own 8HW	6.3.3x4.4	226	6.8	180	95-3300	4-2.87x5.0	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	60.06	7x2¾x.21●	TL
37	Cab.9ROWH-81	2020	110	110	16000	4589	7.50/20-8	8.25/20-10	Own 8RW	8.3⅛x3¾	239	6.8	180	100-3800	3-2.49x5.2	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	60.06	7x2¾x.21●	TL
38	Cab.9MOWH-81	2059	110	110	16000	4574	7.50/20-8	8.25/20-10	Own 8MWH	6.3.5x4.4	254	6.8	210	106-3400	4-2.87x5.0	Y	Own 8MTH	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	60.06	7x2¾x.21●	TL
39	Cab...9HWH-81	2020	134	134	16000	4679	7.50/20-8	8.25/20-10	Own 8HW	6.3.3x4.4	226	6.8	180	95-3300	4-2.87x5.0	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	84.06	7.08x2.8x¾●	TL
40	Cab...9RWH-81	2050	134	134	16000	4719	7.50/20-8	8.25/20-10	Own 8RW	8.3⅛x3¾	239	6.8	180	100-3800	3-2.49x5.2	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	84.06	7.08x2.8x¾●	TL
41	Cab..9MWH-81	2091	134	134	16000	4704	7.50/20-8	8.25/20-10	Own 8MWH	6.3.5x4.4	254	6.8	210	106-3400	4-2.87x5.0	Y	Own 8MTH	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	84.06	7.08x2.8x¾●	TL
42	Cab..9H8WH-81	2050	158	158	16000	4749	7.50/20-8	8.25/20-10	Own 8HW	6.3.3x4.4	226	6.8	180	95-3300	4-2.87x5.0	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	84.06	7.08x2.8x¾●	TL
43	Cab..9R8WH-81	2080	158	158	16000	4789	7.50/20-8	8.25/20-10	Own 8RW	8.3⅛x3¾	239	6.8	180	100-3800	3-2.49x5.2	N	Own 41T	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	108.1	7.08x2.8x¾●	TL
44	Cab.9M8WH-81	2122	158	158	16000	4774	7.50/20-8	8.25/20-10	Own 8MWH	6.3.5x4.4	254	6.8	210	106-3400	4-2.87x5.0	Y	Own 8MTH	4	Own 8TH	Hy	H	6.2 –7.2	Own 7RW	O4IHV	302	506	Co	TX	108.1	7.08x2.8x¾●	TL
	F-7																														
45	Cowl....9EQ-84	2685	135	135	19000	5478	8.25/20-10	9.00/20-10	Own 8EQ	8.3½x4½	337	6.4	255	145-3600	3-2.87x5.2	Y	Own 7EQ	5	Own 8Q	Hy	H	** –6.8	Own 7EQ	O4IHV	444	697	Co	TX	61.06	9x3x.25†	TL
46	Cowl...9E7Q-84	2861	147	147	19000	5528	8.25/20-10	9.00/20-10	Own 8EQ	8.3½x4½	337	6.4	255	145-3600	3-2.87x5.2	Y	Own 7EQ	5	Own 8Q	Hy	H	** –6.8	Own 7EQ	O4IHV	444	697	Co	TX	73.06	9x3x.25†	TL
47	Cowl...9E9Q-84	2735	159	159	19000	5648	8.25/20-10	9.00/20-10	Own 8EQ	8.3½x4½	337	6.4	255	145-3600	3-2.87x5.2	Y	Own 7EQ	5	Own 8Q	Hy	H	** –6.8	Own 7EQ	O4IHV	444	697	Co	TX	85.06	9x3x.25†	TL
48	Cowl...9E8Q-84	2913	178	178	19000	5748	8.25/20-10	9.00/20-10	Own 8EQ	8.3½x4½	337	6.4	255	145-3600	3-2.87x5.2	Y	Own 7EQ	5	Own 8Q	Hy	H	** –6.8	Own 7EQ	O4IHV	444	697	Co	TX	104.1	9x3x.25†	TL
49	Cowl...9E5Q-84	2785	195	195	19000	5808	8.25/20-10	9.00/20-10	Own 8EQ	8.3½x4½	337	6.4	255	145-3600	3-2.87x5.2	Y	Own 7EQ	5	Own 8Q	Hy	H	** –6.8	Own 7EQ	O4IHV	444	697	Co	TX	121.1	9x3x.25†	TL
	F-8																														
50	Cowl...9EQH-84	3155	135	135	22000	5934	9.00/20-10	10.0/20-12	Own 8EQ	8.3½x4½	337	6.4	255	145-3600	3-2.87x5.2	Y	Own 7EQH	5	Own 8QH	SF	H	** –7.17	Own 7EQ	O4IHV	484	729	C	TX	61.06	9x3x.25†	TL
51	Cowl..9E7QH-84	3352	147	147	22000	5984	9.00/20-10	10.0/20-12	Own 8EQ	8.3½x4½	337	6.4	255	145-3600	3-2.87x5.2	Y	Own 7EQH	5	Own 8QH	SF	H	** –7.17	Own 7EQ	O4IHV■	484	729	C	TX	73.06	9x3x.25†	TL
52	Cowl..9E9QH-84	3205	159	159	22000	6224	9.00/20-10	10.0/20-12	Own 8EQ	8.3½x4½	337	6.4	255	145-3600	3-2.87x5.2	Y	Own 7EQH	5	Own 8QH	SF	H	** –7.17	Own 7EQ	O4IHV■	484	729	C	TX	85.06	9x3x.25†	TL
53	Cowl..9E8QH-84	3404	178	178	22000	6124	9.00/20-10	10.0/20-12	Own 8EQ	8.3½x4½	337	6.4	255	145-3600	3-2.87x5.2	Y	Own 7EQH	5	Own 8QH	SF	H	** –7.17	Own 7EQ	O4IHV■	484	729	C	TX	104.1	9x3x.25†	TL
54	Cowl..9E5QH-84	3255	195	195	22000	6284	9.00/20-10	10.0/20-12	Own 8EQ	8.3½x4½	337	6.4	255	145-3600	3-2.87x5.2	Y	Own 7EQH	5	Own 8QH	SF	H	** –7.17	Own 7EQ	O4IHV■	484	729	C	TX	121.1	9x3x.25†	TL
	Freightliner																														
55	(c.o.e.).....B-42	.....	112	174	34000	▲11200	10.00/22	.....	Cum HRB	6-5½x6	743	13½	540	165-1800	7-4½x16½	Y	Fu 4A86	8	Eat 22501	SFd	H	4.33–6.67	Tim 27061	O4IA	645	1050	a	TD	72	10½x3¼x¼	DL
56	Kenworth(D)..521	.....	165	255	28000	12000	10.00/20	11.00/22	Cum HB6	6-4¼x6	672	17.	500	150-1800	7-4½x16	Y	BL 8241	4	Tim U200P	H2F	H	5.91–9.76	TimFe900DPA	Ws4IA	722	1174	a	TD	74	9½x3¼x¼	C
57	585	.....	165	255	28000	9600	10.00/20	11.00/22	Wau 140GZ	6-4½x5½	554	6.4	450	188-2600	7-3x13	Y	Fu 5C650	5	Tim R100P	HF	H	5.29–7.40	TimFe900DPA	Ws4IA	648	1168	a	TD	64	9½x3¼x¼	C
58	Linn.....A-15	.....	120	....	9000	6000	7.50/20S	8.25/20S	Her JXE3	6-3½x4¼	245	6.5	184	91-3200	7-2½x10	Y	WGT9	4	Own 601	N	N	None	Tim F30B28H	L4IH	306	478	a	T	.....	None	....
59	.....A-25	.....	156	....	11200	6200	7.50/20S	8.25/20	Her JXE3	6-3½x4¼	245	6.5	184	91-3200	7-2½x10	Y	WGT9	4	Own 601	N	N	None	Tim F30B28H	L4IH	306	478	a	X	.....	None	....
60	.....A-35	.....	169	....	14700	7900	7.50/20D	8.25/20	Her JXC	6-3¾x4¼	282	6.7	207	103-3200	7-2½x10	Y	WGT9	4	Own 602T	N	N	None	Tim F35	L6IH	486	744	a	X	.....	None	....
61	.....A-45	.....	205	....	16900	8100	7.50/20D	8.25/20	Her JXC	6-3¾x4¼	282	6.7	207	103-3200	7-2½x10	Y	WGT9	4	Own 602T	N	N	None	Tim F35	L6IH	486	744	a	X	.....	None	....

▲—Includes cab.
■—Air brake equipment optional on F-8, Front 16x2¼, Rear 16½x5½.
●—Cowl to axle.

●—Reinforcement 6.58x2.21x.125 extended to include front spring rear brackets and rear spring front bracket.
†—Reinforcement 8.5x2.56x.15 starts at front spring rear brackets and ends behind rear spring front brackets.

(Turn to Page 88, Please)



They move Mountains for national defense

THE NATION'S MOTOR CARRIERS

The motor carriers of the nation are meeting today's challenge — moving mountains of goods swiftly and dependably for the country's defense. The trucking industry has constantly grown to meet the nation's needs. Each year more and more shippers turn to motor freight for their transportation needs. The motor freight industry has demonstrated its ability to serve — for progress in peace — for preparedness in times of war.

In 1949 inter-city truck ton-mileage exceeded 90 billion — more than 7 times greater than in 1925.

In 1949 more freight was hauled in Brown Aluminum trailers than ever before. In 1950 still more mountains of freight are going via Brown trailers operated by many of the nation's leading motor freight lines.

Brown Trailers, Inc., salutes the motor freight industry for its contribution in peace and in war. Brown pledges its every facility to producing the best lightweight aluminum trailers that will support the industry in its all-out efforts to move mountains for national defense.

Brown
ALUMINUM
TRAILERS

BROWN TRAILERS, INC., Toledo, Ohio • Spokane, Wash.

(Continued from Page 86)

Line Number	MAKE AND MODEL	Chassis List Price	WHEEL-BASE Minimum Standard	WHEEL-BASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear Standard Front and Rear	TIRE SIZES Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings Number Diameter and Length	Governor Standard	TRANSMISSION Make and Model	Forward Speeds	REAR AXLE Make and Model	Gear and Type	Drive & Torque	Gear Ratio Range in High	FRONT AXLE Make and Model	BRAKES SERVICE Make Location Type Operation	Lining Area	Drum Area	Drum Material	Hand Location Type	C-A Dimensions (Min. Std. W. B.)	FRAME Side Rail Dimensions	FRAME Type
1	Mar. Her...DVL-4	.....	90	118	$6750	.....	7.50/168	8.25/188	Willys MB	4-3⅛x4½	134	6.4	105	60–4000	3-2.33x5.48	Y	Own	3	(Front Drive)	.....	.....	7.10	Own	4IH	202	327	M2	.....	.....	None	.....
2	Peterbilt(D)...280	.....	175	Opt	35000	12500	10.00/20D	11.00/22	Cum HB600	6-4⅛x6	672	17.	500	150–1800	7-4½x16½	Y	Spl 8041	12	U-200P	2F	R	** –6.42	TimFe900DPA	Ws4IA	738	1052	...	TD	86½	10⅝x3½x⅝	CT
3	Reo.....E-19X	.....	125	125	8000	4400▲	7.00/208	8.25/208										4	Tim 53547	SF	H	4.57–6.16	Tim 30000	LT4IH	310	482	var	TX	60⅝	8⅛x2½x⅜	T
4	.....E-19A	.....	125	125	16000	4950▲	6.50/20	8.25/20	Own 245									4	Tim 53547	HF	H	5.28–6.8	Tim 30000	LT4IVH	310	482	var	TX	60⅝	8⅛x2½x⅜	T
5	.....E-19T	.....	125	125	16000	5410▲	6.50/20	8.25/20	Own 245	6–3½x4¼	245	6.2	192	89–3100	7-2⅝x10.7	N	WG T9	4	Tim 53547	HFd	H	6.13–8.10	Tim 30000	LT4IVH	310	482	var	TX	60⅝	8⅛x2½x⅜	T
6	.....E-19B	.....	150	150	16000	5035▲	6.50/20	8.25/20	Own 245	6–3½x4¼	245	6.2	192	89–3100	7-2⅝x10.7	N	WG T9	4	Tim 53547	HF	H	5.28–6.8	Tim 30000	LT4IVH	310	482	var	TX	60⅝	8⅛x2½x⅜	T
7	.....E-19C	.....	170	170	16000	5120▲	6.50/20	8.25/20	Own 245	6–3½x4¼	245	6.2	192	89–3100	7-2⅝x10.7	N	WG T9	4	Tim 53547	HF	H	5.28–6.8	Tim 30000	LT4IVH	310	482	var	TX	85⅝	8⅛x2½x⅜	T
8	.....E-19L	.....	187‡	187‡	16000	5250▲	6.50/20	8.25/20	Own 245	6–3½x4¼	245	6.2	192	89–3100	7-2⅝x10.7	N	WG T9	4	Tim 53547	HF	H	5.28–6.8	Tim 30000	LT4IHV	310	482	var	TX	100⅝	8⅛x2½x⅜	Tf
9	.....E-20A	.....	125	125	16000	5275▲	8.25/20	8.25/20	Own 255	6–3½x4¼	255	6.7	189	107–3400	7-2⅛x9.408	Y	WG T97	4	Tim &3547	HF	H	5.28–6.8	Tim 30000	LT4IVH	310	482	var	TX	123⅜	9x3x¼	T
10	.....E-20T	.....	125	125	16000	5735▲	8.25/20	8.25/20	Own 255	6–3½x4¼	255	6.7	189	107–3400	7-2⅛x9.408	Y	WG T97	4	Tim E300	HF	H	6.13–8 10	Tim 30000	LT4IVH	340	482	var	TX	60⅝	8⅛x2½x⅜	T
11	.....E-20B	.....	150	150	16000	5400▲	8.25/20	8.25/20	Own 255	6–3½x4¼	255	6.7	189	107–3400	7-2⅛x9.408	Y	WG T97	4	Tim E100♦	HF	H	5.28–6.8	Tim 30000	LT4IVH	340	482	var	TX	60⅝	8⅛x2½x⅜	T
12	.....E-20C	.....	170	170	16000	5535▲	8.25/20	8.25/20	Own 255	6–3½x4¼	255	6.7	189	107–3400	7-2⅛x9.408	Y	WG T97	4	Tim E100♦	HF	H	5.28–6.8	Tim 30000	LT4IVH	340	482	var	TX	85⅝	8⅛x2½x⅜	T
13	.....E-20L	.....	187	▲87	16000	5650▲	8.25/20	8.25/20	Own 255	6–3½x4¼	255	6.7	189	107–3400	7-2⅛x9.408	Y	WG T97	4	Tim E100♦	HF	H	5.28–6.8	Tim 30000	LT4IVH	340	482	var	TX	105⅝	9x3x¼	Tf
14	.....E-21A	.....	125	125	16500	5315▲	8.25/20	8.25/20	Own 292†	6–3⅞x4½	292	6.5	224	124–3300	7-2⅛x9.408	Y	WG T97	4	Tim E100♦	HF	H	5.28–6.8	Tim 30000	LT4IVH	340	482	var	TX	123⅝	9x3x¼	T
15	.....E-21B	.....	150	150	16500	5440▲	8.25/20	8.25/20	Own 292†	6–3⅞x4½	292	6.5	224	124–3300	7-2⅛x9.408	Y	WG T97	4	Tim E100♦	HF	H	5.28–6.8	Tim 30000	LT4IVH	340	482	var	TX	60⅝	8⅛x2½x⅜	T
16	.....E-21C	.....	170	170	16500	5575▲	8.25/20	8.25/20	Own 292†	6–3⅞x4½	292	6.5	224	124–3300	7-2⅛x9.408	Y	WG T97	4	Tim E100♦	HF	H	5.28–6.8	Tim 30000	LT4IVH	340	482	var	TX	85⅝	8⅛x2½x⅜	T
17	.....E-21L	.....	185	185	16500	5690▲	8.25/20	8.25/20	Own 292†	6–3⅞x4½	292	6.5	224	124–3300	7-2⅛x9.408	Y	WG T97	4	Tim E100♦	HF	H	5.28–6.8	Tim 30000	LT4IVH	340	482	var	TX	105⅝	9x3x¼	Tf
18	.....E-21RA	.....	130	130	19000	6165▲	9.00/20	9.00/20	Own 292†	6–3⅞x4½	292	6.5	224	124–3300	7-2⅛x9.408	Y	Cla T97	4	Tim E100♦	HF	H	5.28–6.8	Tim 30000	LT4IVH	340	482	var	TX	60⅝	8⅛x2½x⅜	T
19	.....E-21RT	.....	130	130	19000	6740▲	9.00/20	9.00/20	Own 292†	6–3⅞x4½	292	6.5	224	124–3300	7-2⅛x9.408	Y	Cla T97	4	Tim E100♦	HF	H	5.28–6.8	Tim 30000	LT4IVH	340	482	var	TX	85⅝	9x3x¼	T
20	.....E-21RT	.....	150	150	19000	6330▲	9.00/20	9.00/20	Own 292†	6–3⅞x4½	292	6.5	224	124–3300	7-2⅛x9.408	Y	Cla 205V	5	Tim H100▲	HF	H	5.28–6.8	Tim 30000	LT4IVH	340	482	var	TX	105⅝	9x3x¼	T
21	.....E-21RC	.....	170	170	19000	6465▲	9.00/20	9.00/20	Own 292†	6–3⅞x4½	292	6.5	224	124–3300	7-2⅛x9.408	Y	Cla 205V	5	Tim H100▲	HF	H	5.28–6.8	Tim 31104	LT4IVH	340	482	var	TX	120⅝	9x3x¼	Tf
22	.....E-21RL	.....	185	185	19000	6600▲	9.00/20	9.00/20	Own 292†	6–3⅞x4½	292	6.5	224	124–3300	7-2⅛x9.408	Y	Cla 205V	5	Tim H300▲	HFd	H	6.67–8.85	Tim 31104	LT4IVH	370	640	var	TX	65⅝	9x3x¼	T
23	.....E-22A	.....	130	130	20000	6165▲	9.00/20	9.00/20	Own 292†	6–3⅞x4½	292	6.5	224	124–3300	7-2⅛x9.408	Y	Cla 205V	5	Tim H100▲	HF	H	5.28–6.8	Tim 31104	LT4IVH	370	640	var	TX	65⅝	9x3x¼	T
24	.....E-22T	.....	130	130	20000	6740▲	9.00/20	9.00/20	Own 331▲	6–4¼x4½	331	6.4	264	140–3200	7-2⅛x9.408	Y	Cla 205V	5	Tim H100▲	HF	H	5.28–6.8	Tim 31104	LT4IVH	370	640	var	TX	85⅝	9x3x¼	T
25	.....E-22B	.....	150	150	20000	6330▲	9.00/20	9.00/20	Own 331▲	6–4¼x4½	331	6.4	264	140–3200	7-2⅛x9.408	Y	Cla 205V	5	Tim H100▲	HF	H	5.28–6.8	Tim 31104	LT4IVH	370	640	var	TX	105⅝	9x3x¼	Tf
26	.....E-22C	.....	170	170	20000	6465▲	9.00/20	9.00/20	Own 331▲	6–4¼x4½	331	6.4	264	140–3200	7-2⅛x9.408	Y	Cla 205V	5	Tim H300	HFd	H	6.67–8.85	Tim 31104	LT4IVH	370	640	var	TX	120⅝	9½x3⅞x⅝	Tf
27	.....E-22L	.....	185	185	20000	6600▲	9.00/20	9.00/20	Own 331▲	6–4¼x4½	331	6.4	264	140–3200	7-2⅛x9.408	Y	Cla 205V	5	Tim H100▲	HF	H	5.28–6.8	Tim 31104	LT4IVH	370	640	var	TX	65⅝	9x3x¼	T
28	.....E-22RA	.....	130	130	22000	6705▲	10.00/20	10.00/20	Own 331▲	6–4¼x4½	331	6.4	264	140–3200	7-2⅛x9.408	Y	Cla 205V	5	Tim H100▲	HF	H	5.28–6.8	Tim 31104	LT4IVH	370	640	var	TX	85⅝	9x3x¼	T
29	.....E-22RT	.....	130	130	22000	7205▲	10.00/20	10.00/20	Own 331▲	6–4¼x4½	331	6.4	264	140–3200	7-2⅛x9.408	Y	Cla 205V	5	Tim H100▲	HF	H	5.28–6.8	Tim 31104	LT4IVH	370	640	var	TX	105⅝	9x3x¼	Tf
30	.....E-22RB	.....	150	150	22000	6910▲	10.00/20	10.00/20	Own 331▲	6–4¼x4½	331	6.4	264	140–3200	7-2⅛x9.408	Y	Cla 205V	5	Tim L100▲	HF	H	6.16–7.4	Tim 32500	LT4IVH	422	644	var	TX	120⅝	9½x3⅞x⅝	Tf
31	.....E-22RC	.....	170	170	22000	7100▲	10.00/20	10.00/20	Own 331▲	6–4¼x4½	331	6.4	264	140–3200	7-2⅛x9.408	Y	Cla 205V	5	Tim L300▲	HFd	H	6.32–8.22	Tim 32500	LT4IVH	422	644	var	TX	65⅝	9x3x¼	T
32	.....E-22RL	.....	185	185	22000	7260▲	10.00/20	10.00/20	Own 331▲	6–4¼x4½	331	6.4	264	140–3200	7-2⅛x9.408	Y	Cla 205V	5	Tim L100▲	HF	H	6.16–7.4	Tim 32500	LT4IVH	422	644	var	TX	65⅝	9x3x¼	T
33	.....E-22SA	.....	130	130	24000	7630▲	10.00/20	11.00/20	Own 331♦	6–4¼x4½	331	6.4	264	140–3200	7-2⅛x9.408	Y	Cla 205V	5	Tim L100▲	HF	H	6.16–7.4	Tim 32500	LT4IVH	422	644	var	TX	85⅝	9x3x¼	T
34	.....E-22ST	.....	130	130	24000	8090▲	10.00/20	11.00/20	Own 331♦	6–4¼x4½	331	6.4	264	140–3200	7-2⅛x9.408	Y	Cla 205V	5	Tim L100▲	HF	H	6.16–7.4	Tim 32500	LT4IVH	422	644	var	TX	105⅝	9x3x¼	Tf
35	.....E-22SB	.....	150	150	24000	7810▲	10.00/20	11.00/20	Own 331♦	6–4¼x4½	331	6.4	264	140–3200	7-2⅛x9.408	Y	Cla 205V	5	Tim Q100▲	HF	H	5.28–7.8	Tim 35000	LT4IVH	422	644	var	TX	120⅝	9½x3⅞x⅝	Tf
36	.....E-22SC	.....	170	170	24000	7995▲	10.00/20	11.00/20	Own 331♦	6–4¼x4½	331	6.4	264	140–3200	7-2⅛x9.408	Y	Cla 205V	5	Tim Q300▲	HFd	H	6.53–8.53	Tim 35000	TWs4IA	638	934	var	TX	65⅝	9½x3⅞x⅝	T
37	.....E-22SL	.....	185	185	24000	8150▲	10.00/20	11.00/20	Own 331♦	6–4¼x4½	331	6.4	264	140–3200	7-2⅛x9.408	Y	Cla 205V	5	Tim Q100▲	HF	H	5.28–7.8	Tim 35000	TWs4IA	638	934	var	TX	65⅝	9½x3⅞x⅝	T
38	.....E-23SA	.....	130	130	24000	7190▲	9.00/20	10.00/20	Con T6371	6–4¼x4½	371	5.8	294	126–2600	7-2⅛x13.6	Y	Cla 270V	5	Tim Q100▲	HF	H	5.28–7.8	Tim 35000	TWs4IA	638	934	var	TX	85⅝	9½x3⅞x⅝	T
39	.....E-23ST	.....	130	130	24000	7490▲	9.00/20	10.00/20	Con T6371	6–4¼x4½	371	5.8	294	126–2600	7-2⅛x13.6	Y	Cla 270V	5	Tim Q100▲	HF	H	5.28–7.8	Tim 35000	TWs4IA	638	934	var	TX	105⅝	9½x3⅞x⅝	Tf
40	.....E-23BB	.....	150	150	24000	7335▲	9.00/20	10.00/20	Con T6371	6–4¼x4½	371	5.8	294	126–2600	7-2⅛x13.6	Y	Cla 270V	5	Tim L100▲	HF	H	6.16–7.4	Tim 32500	LT4IVH	422	644	var	TX	120⅝	9½x3⅞x⅝	Tf
41	.....E-23BC	.....	170	170	24000	7505▲	9.00/20	10.00/20	Con T6371	6–4¼x4½	371	5.8	294	126–2600	7-2⅛x13.6	Y	Cla 270V	5	Tim L100▲	HF	H	6.16–7.4	Tim 32500	LT4IVH	422	644	var	TX	65⅝	9½x3⅞x⅝	T
42	.....E-23BL	.....	185	185	24000	7650▲	9.00/20	10.00/20	Con T6371	6–4¼x4½	371	5.8	294	126–2600	7-2⅛x13.6	Y	Cla 270V	5	Tim L100▲	HF	H	6.16–7.4	Tim 32500	LT4IVH	422	644	var	TX	85⅝	9½x3⅞x⅝	T
43	.....E-23A	.....	130	130	24000	7630▲	10.00/20	10.00/20	Con T6371	6–4¼x4½	371	5.8	294	126–2600	7-2⅛x13.6	Y	Cla 270V	5	Tim L100▲	HF	H	6.16–7.4	Tim 32500	LT4IVH	422	644	var	TX	105⅝	9½x3⅞x⅝	Tf
44	.....E-23T	.....	130	130	24000	8120▲	10.00/20	10.00/20	Con T6427	6–4¼x4½	427	5.9	338	145–2600	7-2⅛x13.6	Y	Cla 270V	5	Tim L100▲	HF	H	6.16–7.4	Tim 32500	LT4IVH	422	644	var	TX	120⅝	9½x3⅞x⅝	Tf
45	.....E-23B	.....	150	150	24000	7790▲	10.00/20	10.00/20	Con T6427	6–4¼x4½	427	5.9	338	145–2600	7-2⅛x13.6	Y	Cla 270V	5	Tim L100▲	HF	H	6.16–7.4	Tim 32500	TWs4IA	514	644	var	TX	65⅝	9½x3⅞x⅝	T
46	.....E-23C	.....	170	170	24000	7950▲	10.00/20	10.00/20	Con T6427	6–4¼x4½	427	5.9	338	145–2600	7-2⅛x13.6	Y	Cla 270V	5	Tim L100▲	HF	H	6.16–7.4	Tim 32500	TWs4IA	514	644	var	TX	65⅝	9½x3⅞x⅝	T
47	.....E-23L	.....	185	185	24000	8090▲	10.00/20	10.00/20	Con T6427	6–4¼x4½	427	5.9	338	145–2600	7-2⅛x13.6	Y	Cla 270V	5	Tim L100▲	HF	H	6.16–7.4	Tim 32500	TWs4IA	514	644	var	TX	85⅝	9½x3⅞x⅝	T
48	.....E-23RA	.....	130	130	26000	8020▲	10.00/20	11.00/20	Con T6427	6–4¼x4½	427	5.9	338	145–2600	7-2⅛x13.6	Y	Cla 270V	5	Tim L100▲	HF	H	6.16–7.4	Tim 32500	TWs4IA	514	644	var	TX	105⅝	9½x3⅞x⅝	Tf
49	.....E-23RT	.....	130	130	26000	8480▲	10.00/20	11.00/20	Con T6427	6–4¼x4½	427	5.9	338	145–2600	7-2⅛x13.6	Y	Cla 270V	5	Tim L100▲	HF	H	6.16–7.4	Tim 32500	TWs4IA	514	644	var	TX	120⅝	9½x3⅞x⅝	Tf
50	.....E-23RB	.....	150	150	26000	8175▲	10.00/20	11.00/20	Con T6427	6–4¼x4½	427	5.9	338	145–2600	7-2⅛x13.6	Y	Cla 270V	5	Tim Q100▲	HF	H	5.28–7.8	Tim FD900	TWs4IA	620	928	var	TX	65⅝	9½x3⅞x⅝	T
51	.....E-23RC	.....	170	170	26000	8360▲	10.00/20	11.00/20	Con T6427	6–4¼x4½	427	5.9	338	145–2600	7-2⅛x13.6	Y	Cla 270V	5	Tim Q100▲	HF	H	5.28–7.8	Tim FD900	TWs4IA	620	928	var	TX	85⅝	9½x3⅞x⅝	T
52	.....E-23RL	.....	185	185	26000	8520▲	10.00/20	11.00/20	Con T6427	6–4¼x4½	427	5.9	338	145–2600	7-2⅛x13.6	Y	Cla 270V	5	Tim Q100▲	HF	H	5.28–7.8	Tim FD900	TWs4IA	620	928	var	TX	105⅝	9½x3⅞x⅝	Tf
53	.....30A	.....	145	145	32000	11280▲	11.00/20	11.00/24	Con R6513	6–4¼x5½	513	5.8	392	167–2600	7-3¼x14.7	Y	Spl 6252A	5	Tim Q100▲	HF	H	5.28–7.8	Tim FD900	TWs4IA	620	928	var	TX	120⅝	9½x3⅞x⅝	Tf
54	.....30B	.....	165	165	32000	11360▲	11.00/20	11.00/24	Con R6513	6–4¼x5½	513	5.8	392	167–2600	7-3¼x14.7	Y	Spl 6252A	5	Tim S300▲	HFd	H	6.42–8.38	Tim 36000	TWs4IA	722	1038	var	TX	67½	10⅛x3½x⅝	T
55	.....31A	.....	145	145	32000	11280▲	11.00/20	11.00/24	Con R6602	6–4¾x5½	602	5.8	456	194–2600	7-3¼x14.7	Y	Spl 6252A	5	Tim U200▲	HFd	H	7.08	Tim 36000	TWs4IA	722	1038	var	TI	87½	10⅛x3½x⅝	T
56	.....31B	.....	165	165	32000	11360▲	11.00/20	11.00/24	Con R6602	6–4¾x5½	602	5.8	456	194–2600	7-3¼x14.7	Y	Spl 6252A	5	Tim U200▲	HFd	H	6.42–8.38	Tim 36000	TWs4IA	722	1038	var	TI	87½	10⅛x3½x⅝	T
57	Sterling....HD97	.....	148	175	24000	9150	9.00/20	11.00/20	Wau 6MZA	6–4⅛x4¼	404	5.6	290	130–3000	7-2⅝x12½	Y	Fu 5A43	5	Tim Q100DPH	FHy	R	5.29–7.80	Tim 35011H	T4IHV	524	926	A	TX	67	9x7x¼	A
58	.....HD105	.....	148	175	24000	9550	10.00/20	11.00/22	Wau 6MZA	7–4⅛x4¼	404	5.6	290	130–3000	7-2⅝x12½	Y	Fu 5A43	5	TimR100DPH	FHy	R	5.29–7.40	Tim 35011H	T4IHV	524	926	A	TX	67	9x3¼x⅛	A
59	.....HD115	.....	148	175	32000	10650	10.00/20	11.00/22	Wau 6SRKR	6–4⅝x5½	517	5.5	368	125–2250	7-3x13¾	Y	Fu 5A62	4	Tim 8200P	2F	R	6.42–9.83	Tim 36000TW	Ws4IA	722	1054	A	TX	67	9x3¼x⅛	A
60	.....HD145	.....	148	175	32000	10650	10.00/20	11.00/24	Wau 6SRKR	6–4⅝x5½	517	5.5	368	125–2250	7-3x13¾	Y	Fu 5A62	4	Tim 79721W	2F	R	7.69–11.36	Tim 36000TW	Ws4IA	722	1054	A	TX	67	9x3¼x⅛	A
61	(D).....HD115H	.....	158	185	36000	11250	11.00/20	12.00/24	Cum HB600	6–4⅛x6	672	17.	500	150–1800	7-4½x16½	Y	Fu 4B86	4	Tim 8200P	2F	R	6.42–9 83	Tim 36000TW	Ws4IA	670	1118	A	TX	67	9¼x3½x⅝	A
62	(D).....HD145H	.....	158	185	32000	11950	10.00/20	11.00/24	Cum HB600	6–4⅛x6	672	17.	500	150–1800	7-4½x16½	Y	Fu 4B86	4	Tim 79721W	2F	R	7.69–11.36	Tim 36000TW	Ws4IA	722	1054	A	TX	68	9x3¼x⅛	A
63	.....HC97	.....	148	175	24000	9200	9.00/20	11.00/20	Wau 6MZA	6–4¼x4¾	404	5.6	290	130–3000	7-2⅝x12½	Y	Fu 5A43	5	Own 97H	CD	R	6.70–10.82	Tim 35011H	T4IHV	518	852	A	TX	68	9¼x3½x⅝	A
64	.....HC105	.....	148	175	28000	9700	10.00/20	11.00/22	Wau 6MZA	6–4¼x4¾	404	5.6	290	130–3000	7-2⅝x12½	Y	Fu 5A43	15	Own 137H	CD	R	6.70–10.82	Tim 35011H	T4IHV	518	852	A	TX	67	9x7x¼	A
65	.....HC115	.....	148	175	32000	10350	10.00/20	11.00/24	Wau 6SRKR	6–4⅝x5½	517	5.5	368	125–2250	7-3x13¾	Y	Fu 5A62	15	Own 137W	CD	R	6.70–10.82	Tim 35011H	TL4IHV	540	842	A	TX	67	9x3¼x⅛	A
66	.....HC144	1:8	175	175	36000	11250	10.00/22	12.00/24	Wau 6SRKR	6–4⅝x5½	517	5.5	368	125–2250	7-3x13¾	Y	Fu 5A62	15	Own 148W	CD	R	6.70–10.82	Tim 36000TW	Ws4IA	648	1064	A	TX	67	9x3¼x⅛	A
67	.....HC147	.....	148	175	36000	11500	10.00/22	12.00/24	Wau 6SRKR	6–4⅝x5½	517	5.5	368	125–2250	7-3x13¾	Y	Fu 5A62	15	Own 147W	CD	R	6.70–10.82	Tim 36000TW	Ws4IA	708	1102	A	TX	67	9¼x3½x⅝	A
68	.....HC175	.....	167	185	45000	14600	12.00/24†	14.00/24‡	Wau 6SRKR	6–4⅝x5½	517	5.5	368	125–2250	7-3x13¾	Y	Fu 5A62	12	Own 175W	CD	R	6.70–10.82	Tim 36000TW	Ws4IA	708	1102	A	TX	67	9¼x3½x⅝	A
69	.....HC250	.....	178	190	60000	18400	14.00/24‡	14.00/24‡	Wau 145GK	6–5½x6	779	6.2	585	186–2100	7-3½x17¾	Y	Fu 4B86•	12	Own 251W	CD	R	7.31–12.42	Tim 27454W	Ws4IA	786	1212	A	TX	67	9¾x3¾x⅝	A
70	(D).....HC115H	.....	167	185	32000	12250	10.00/20	11.00/24	Cum HB600	6–4⅞x6	672	17.	500	150–1800	7-4½x16½	Y	Fu 4B86•	12	Own 137W	CD	R	7.31–12.42	Tim 27454W	Ws4IA	786	1212	A	TX	77	9¼x3¾x⅝	A
71	(D).....HC175H	.....	167	185	45000	14930	12.00/24†	14.00/24‡	Cum HBD600	6–4⅞x6	672	17.	500	150–1800	7-4½x16½	Y	Fu 4B86•	12	Own 175W	CD	R	7.31–12.42	Tim 27454W	Ws4IA	786	1212	A	TX	95	12x3½x⅝	AL
72	(D).....HC250H	.....	178	190	60000	18700	14.00/24‡	14.00/24‡	Cum HBD600	6–4⅞x6	672	17.	500	150–1800	7-4½x16½	Y	Fu 4B86•	12	Own 251W	CD	R	7.31–12.42	Tim 27454W	Ws4IA	786	1212	A	JX	95	12x3½x⅝	AL

(Turn to Page 90, Please)

▲ Includes Cab
♦—Two speed axle available.
§ Auxiliary Transmission Own OJ.

‡ Rear only: Front 12.00/24.
♣ Auxiliary transmission Own FJ.
♦♦—Two speed 6.13–8.10 optional.

•—Model 288 engine can be furnished.
▪—Model 310 engine can be furnished.
‡—8200 for 8.25/18 tires.

▲—Double reduction and 2-speed available.
† Rear only: Front 11.00/24.

Wagner Air Brakes

THE CHOICE OF FLEET OPERATORS

The statements at right—by men who are responsible for the economical operation of heavy-duty vehicles, are just a few examples of what hundreds of cost-conscious operators have said about Wagner Air Brakes.

In the trucking industry everywhere—on all types of heavy-duty vehicles, Wagner Air Brakes are establishing outstanding economy records for brake performance under the most severe operating conditions. Because of their proven reliability, Wagner Air Brakes have become the choice of fleet operators.

Wagner Air Brakes are the product of more than twenty years of brake engineering experience—experience gained in the manufacture of hydraulic brakes and brake parts for the automotive industry. This outstanding brake knowledge is your assurance that when you install Wagner Air Brakes you will reduce brake maintenance costs and increase your payload profits.

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CoMaX BRAKE LINING...AIR BRAKES...TACHOGRAPHS...
ELECTRIC MOTORS...TRANSFORMERS...INDUSTRIAL BRAKES

(Continued from Page 88)

Line Number	MAKE AND MODEL	Chassis List Price	WHEEL-BASE Minimum Standard	WHEEL-BASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear: Standard Front and Rear	TIRE SIZES: Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings: Number Diameter and Length	Governor Standard	TRANSMISSION: Make and Model	Forward Speeds	REAR AXLE: Make and Model	Gear and Type	Drive & Torque	Gear Ratio Range in High	FRONT AXLE: Make and Model	BRAKES SERVICE: Make Location Type Operation	Lining Area	Drum Area	Drum Material	Hand Location Type	C-A Dimensions (Min. Std. W. B.)	FRAME: Side Rail Dimensions	Type
1	Studebaker....2R5	1022	112	112	4600	2125	6.00/168	6.50/168	Own 1R	6–3x4	170	7.0	138	85–4000	4–2⅛x5	N	Own 673519	3	Own 679817	Hy	H	4.82–4.09	Own 678860	Wg4IH	170	276	CO	2I	40	7x2 ⅛x ⅛	T
2	.....2R6	1072	112	112	4600	2365	6.00/168	6.50/168	Own 6R	6–3⅛x4¾	245	7.0	205	102–3200	4–2⅛x5	N	Own 679807	3	Own 679815	Hy	H	4.09–4.82	Own 678860	Ws4IH	170	276	CO	2I	40	7x2 ⅛ x ⅛	T
3	.....2R10	1088	122	122	6100	2400	6.50/168	7.50/168	Own 1R	6–3x4	170	7.0	138	85–4000	4–2⅛x5	N	Own 673519	3	Own 679819	SF	H	5.57–4.86	Own 678860	Wg4IH	198	314	CO	2I	50	7⅛x2 ⅛x ⅛	T
4	.....2R11	1138	122	122	6100	2640	6.50/168	7.50/168	Own 6R	6–3⅛x4¾	245	7.0	205	102–3200	4–2⅛x5	N	Own 679146	3	Own 679818	SF	H	** –4.83	Own 678860	Ws4IH	198	314	CO	2I	50	7⅛x2 ⅛x ⅛	T
5	.....2R14–21	1268	121	121	7800	3245	7.00/17S	7.00/20	Own 6R	6–3⅛x4¾	245	7.0	205	102–3200	4–2⅛x5	N	Own 678790	4	Own 677768	SF	H	5.83–6.66	Own 677091	LH4IH	226	342	CE	TX	50¼	8x2 ⅛x ⅛	T
6	.....2R15–21	1236	121	121	7800	3005	7.00/17S	7.00/20	Own 2R	6–3x4	170	7.0	138	85–4000	4–2⅛x5	N	Own 676044	4	Own 677768	SF	H	5.83–6.66	Own 677091	LH4IH	226	342	Ce	TX	50¼	8x2 ⅛x ⅛	T
7	.....2R15–31	1255	131	131	10000	3065	7.00/17S	7.00/20	Own 2R	6–3x4	170	7.0	138	85–4000	4–2⅛x5	N	Own 676044	4	Own 677768	SF	H	5.83–6.66	Own 677091	LH4IH	226	342	Ce	TX	60¼	8⅛x2 ⅛x ⅛	T
8	.....2R16	1291	131	195	14000	3695	6.50/20D	8.25/20	Own 3R	6–3⅛x4⅛	226	6.5	174	94–3400	4–2⅛x5	N	Own 676045	4	Own 675732††	SF	H	6.66–5.66	Own 674484	LH4IH	294	442	Ce	TX	60¼	8¼x2 ⅛x ⅛	T
9	.....2R16A	1326	131	195	14000	3695	6.50/20 D	8.25/20	Own 4R	6–3⅛x4¾	245	7.0	205	102–3200	4–2⅛x5	N	Own 678790	4	Own 675732†	SF	H	6.66–5.83	Own 674484	LH4IH	294	442	Ce	TX	60¼	8¼x2 ⅛x ⅛	T
10	.....2R16B	1326	131	195	15000	3695	6.50/20D	8.25/20	Own 4R	6–3⅛x4¾	245	7.0	205	102–3200	4–2⅛x5	N	Own 678790	4	Own 675732†	SF	H	6.66–5.83	Own 674484	LH4IH	294	442	Ce	TX	60¼	8¼x2 ⅛x ⅛	T
11	.....2R17	1592	131	195	16000	4180	7.50/20D	8.25/20	Own 3R	6–3⅛x4⅛	226	6.5	174	94–3400	4–2⅛x5	Y	Own 676045	4	Own 675571††	Hy	H	6.80–	Own 674484	LH4IH	367	553	Ce	TX	60¼	8¼x2 ⅛x ⅛	T
12	.....2R17A	1627	131	195	16000	4180	7.50/20 D	9.00/20	Own 4R	6–3⅛x4¾	245	7.0	205	102–3200	4–2⅛x5	N	Own 678794	4	Own 675571††	Hy	H	6.80–6.20	Own 674484	LH4IH	367	553	Ce	TX	60¼	8¼x2 ⅛x ⅛	P
13	.....2R17B	1627	131	195	17000	4180	7.50/20D	9.00/20	Own 4R	6–3⅛x4¾	245	7.0	205	102–3200	4–2⅛x5	N	Own 678794	4	Own 675571††	Hy	H	6.80–6.20	Own 674484	LH4IH	367	553	Ce	TX	60¼	8¼x2 ⅛x ⅛	P
14	Ward La Fr...D-1	149	220	25000	▲9500	10.00/20	11.00/20	Con T6427	6–4⅛x4⅛	427	5.1	340	152–2600	7–2⅛x13½	Y	Ful 5A430	5	Tim Q-100	B	R	**–6.83	Tim 35017TW	Ws4A	600	928	C	TM	68¼	9¼x3x⅛	T
15	.....D-1C	149	220	29000	▲9500	11 00/20	11.00/22	Con T6427	6–4⅛x4⅛	427	5.1	340	152–2600	7–2⅛x13½	Y	Ful 5A430	5	Tim S-200	S2	R	**–7.08	Tim 35017TW	Ws4A	673	1031	C	TM	68¼	9¼x3x⅛	T
16	.....D-2K	149	220	29000	▲10000	11.00/20	11.00/22	Wau 140GK	6–4½x5½	525	6.4	425	168–2400	7–2¾x13⅜	Y	Ful 5A620	5	Tim S-200	S2	R	**–7.84	Tim 35017TW	Ws4A	673	1031	C	TM	68¼	10x3½x⅛	T
17	.....D-2Z	149	220	29000	▲10000	11.00/20	11.00/20	Wau 140GZ	6–4⅝x5½	554	6.4	456	184–2400	7–3¼x13⅞	Y	Ful 5C650	5	Tim S-200	S2	R	**–7.84	Tim 35017TW	Ws4A	673	1031	C	TM	68¼	10x3½x⅛	T
18	.....D-3	149	220	29000	▲10000	11.00/20	11.00/22	Con R6572	6–4¾x5¾	572	5.9	440	189–2600	7–3¼x14½	Y	Ful 5C650	5	Tim S-200	S2	R	**–7.84	Tim 35017TW	Ws4B	673	1031	C	TM	68¼	10x3½x⅛	T
19	.....D-3S	149	220	29000	▲10000	11.00/20	11.00/22	Con R5602	6–4¾x5¾	602	5.9	463	198–2600	7–3¼x14½	Y	Ful 5C650	5	Tim S-200	S2	R	**–7.84	Tim 35017TW	Ws4B	673	1031	C	TM	68¼	10x3½x⅛	T
20	(D).....D-5	149	220	35000	▲12500	11.00/22	11.00/22	Cum HB600	6–4½x6	672	17	500	150–1800	7–4½x16¾	Y	Ful 5C650	5	Tim U-200	S2	R	**–6.42	Tim 27463	Ws4B	681	1041	C	TM	68¼	10x3½x⅛	T
21	Willys Pan. Del. 473	*1295	104	104	4000	*2620	6.50/15S		Own 473	4–3½x4⅜	134	7.4	114	72–4000	3–2.33x5.48	N	WG T96	3	Spl 23–1	Hy	H	4.88–5.38	Own I Tr	B4IH	133	220	a	2I	.....	5x2 ⅛ x.063	TfD
22	Willys.....HT	*1220	118	118	4250	*2722	6.00/16S	6.50/16S	Own 473	4–3½x4⅜	134	7.4	114	72–4000	3–2.33x5.48	N	WG T96	3	Spl 41	Hy	H	** –5.38	Cla F-154	B4IH	176	276	a	2I	42.28	5½x2x ⅛	TD
	Four-Wheel-Drive																														
23	Coleman.....G-55	136	150	30000	11750	11.00/20	12.00/20	Buda LO-525	6–4½x5½	525	6.7	400	150–2200	7–3x7¾	Y	Fu 5A650	5	OW-C375FXa	.....	9.66	OW	TW IA	598	9214	...	FD	96	9x3x⅜	C
24	Corbitt...G101F20	Opt	....	20000	.....	8.25/20	9.00/20	Con M6330	6–4x4½	330	6.1	248	104–2800	7–2½x12	Y	Cla 205VO	5	Tim H100	HF	H	** –6.8	Tim F35	LT4IHV	420	654	a	TX	Opt	8x3⅛x⅛	T
25	.....G301F24	Opt	....	24000	.....	9.00/20	10.00/20	Con B6371	6–4½x5½	371	6.0	280	100–2600	7–2⅞x13½	Y	Fu 5A43	5	Tim R2090	2F	H	** –8.43	Tim F2090	LT4IHV	520	788	a	TD	Opt	9x2⅜x¼	T
26	.....G601F31	Opt	....	32000	.....	10.00/20	11.00/24	Con R6513	6–4½x5¾	513	5.9	400	170–2600	7–3¼x14½	Y	Fu 5A620	5	Tim 1357	2F	H	6.65–7.33	Tim F3110	Ws4IA	644	984	a	TD	Opt	10½x3¼x⅛	TL
27	(T)(D) D808U32	Opt	....	32000	.....	10.00/20	11.00/24	Cum HRBB600	6–5½x6	743	17	540	175–2000	7–4½x16½	Y	Fu 5C720	5	Tim 1758	2F	H	** –7.33	Tim F3100	Ws4IA	644	984	a	TD	Opt	10½x3¼x⅛	TL
28	Dodge....B-2-PW	126	126	8700	.....	7.50/16S	9.00/16-8	Own T-137	6–3⅛x4½	230	6.7	186	94–3200	4–2½x4.8	Y	NP-88790	4	Own T-137	HyF	H	4.89–5.83	Own T-137	O4IH	210	311	Co	TX	52⅜	⅜x2 ⅛x6½	C
29	FWD.....LD	124	184	.....	▲5500	6.50/20D	9.00/20	HerCB-QXLD3	6–3⅛x4⅛	236	6.7	190	97–3200	7–2½x10 ⅛	Y	WG T9A	8	Tim F30	SF	H	** –6.67	Tim 53547	T4IHV	324	518	a	T4	60	8x3x ⅛	T
30	.....HA	132	168	.....	▲7545	8.25/20D	10.00/20	Wau 195GKA	6–4½x4	320	6.2	245	125–3200	4–2¾x7⅛	Y	Own HA	5	Own HA	SF	H	6.6 –9.01	Own HA	L4IHV	473	836	a	T4	79½	9x3x¼	T
31	.....HAY	132	168	.....	7945	9.00/20D	10.00/20	Wau 195GKA	6–4½x4	320	6.2	245	125–3200	4–2¾x7⅛	Y	Own HAY	5	Own HAY	SF	H	6.6 –9.01	Own HAY	L4IHV	473	836	a	T4	79½	9x3x¼	T
32	.....HR	132	168	.....	▲8000	9.00/20	10.00/20	Wau MZA	6–4¼x4⅛	404	5.6	291	130–3000	7–2⅝x12⅛	Y	Own HR	5	Own HR	SF	H	6.6 –9.01	Own HR	L4IHV	473	836	a	T4	79½	9x3x¼	T
33	.....HG	154	154	.....	▲8050	9.00/20	10.00/20	Wau MZA	6–4¼x4⅛	404	5.6	291	130–3000	7–2⅝x12⅛	Y	Own HG	5	Own HG	SF	H	6.6 –9.01	Own HG	L4IHV	473	836	a	T4	89¾	7⅛x3x ⅜	C
34	.....HGY	154	154	.....	8400	10.00/20D	10.00/20	Wau MZA	6–4¼x4⅛	404	5.6	291	130–3000	7–2⅝x12½	Y	Own HGY	5	Own HGY	SF	H	6.9 –9.01	Own HRG	L4IHV	473	836	a	T4	89¾	7⅛x3x ⅜	C
35	.....HRC	139	163	.....	▲9500	10.00/20D	11.00/20	Wau 140GKB	6–4½x5½	525	6.4	425	172–2600	7–3¼x13⅜	Y	Own HRC	10	Own HRC	SF	H	5.4 –9.0	Own HRC	Wg4IHA	419	611	a	T4	74½	9x3x¼	T
36	.....HRY	144	168	.....	▲8400	10.00/20D	11.00/20	Wau MZA	6–4¼x4⅛	404	5.6	291	130–3000	7–2⅝x12½	Y	Own HRY	5	Own HRY	SF	H	6.6 –9.0	Own HRY	L4IHV	473	836	a	T4	79½	9x3x¼	T
37	.....SU	150	182	.....	▲10570	11.00/20D	12.00/20	Wau 8RKR	6–4⅝x5⅛	517	5.5	369	126–2250	7–3x13⅞	Y	Own U	5	Own U	BF	H	6.7 –9.8	Own U	L4IHV	512	985	a	T4	90	8 ⅛x3x ⅜	C
38	.....YU	150	182	.....	▲11570	11.00/20D	12.00/20	Wau 140GK	6–4½x5½	525	6.1	425	142–2250	7–3¼x13⅜	S	Own S	5	Own YU	SF	H	5.7–10.8	Own YU	Wg4IHV	539	804	a	T4	90	8 ⅛x3x ⅜	C
39	.....ZU	150	182	.....	▲12540	11.00/20D	12.00/20	Wau 140GZ	6–4 ⅝x5 ⅛	554	6.4	460	188–2600	7–3 ¼x13 ⅜	S	Own S	5	Own ZU	SF	H	6.6–11.4	Own ZU	Wg4IHA	640	1106	a	T4	90	10 ⅛x3x ⅜	C
40	.....M7G	150	180	.....	▲15500	12.00/20D	12.00/24	Wau 145GK	6–5¼x6	779	6.2	590	186–2000	7–3½x17⅝	Y	Own M	10	Tim 1758W	2F	H	5.9 –8.8	Wis F409W	WW4IA	644	1090	a	T4	90	10 ⅛x3x ⅜	C
41	(D).....M7D	150	180	.....	▲16100	12.00/20D	12.00/24	Bu DC844	6–5¼x6½	844	...	605	180–1800	7–3¾x17	Y	Own M	10	Tim 1758W	2F	H	5.9 –8.8	Wis F409W	WW4IA	644	1090	a	T4	90	10 ⅛x3x ⅜	C
42	.....M10G	150	180	.....	▲15800	11.00/24D	12.00/24	Wau 145GK	6–5¼x6	779	6.2	590	186–2000	7–3½x17⅝	Y	Own M	10	Tim 79721W	2F	H	6.7 –9.2	WlsF408CWX1	WW4IA	693	1144	a	T4	90	10 ⅛x3x ⅜	C
43	(D) M10D	150	180	.....	▲16400	11.00/24D	12.00/24	Bu DC844	6–5½x6½	844	...	605	180–1800	7–3¾x17	Y	Own M	10	Tim 79721W	2F	H	6.7 –9.2	WlsF408CWX1	WW4IA	693	1144	a	T4	90	10 ⅛x3x ⅜	C
44	Marmon–MH440-4	158	170	24000	▲9800	9.00/20D	10.00/20	Her WXLC3	6–4¼x4⅛	404	5.4	293	118–2800	7–2⅝x13¼	Y	Fu	5	Own	2B	H	** –8.43	Own	W....A	584	887	e	F	72	9 ⅜x3x¼	T
45	Herr...MH-RC 4	161	....	26000	▲10550	9.00/20	10.00/20	Her RXC	6–4⅛x5⅛	529	6.3	390	131–2200	7–3x13¾	Y	Fu	5	Own	2B	H	** –8.43	Own	W....A	584	887	e	F	72	9 ⅜x3x¼	T
46	.....MH555-4	161	173	30000	▲11550	10.00/20D	11.00/20	Her RXC	6–4⅛x5⅛	529	6.3	390	131–2200	7–3x13¾	Y	Fu	5	Own	2B	H	** –8.15	Own	W....A	696	1039	e	F	72	10 ⅛x3x ⅛	T
47	.....MH-RH 4	161	....	33000	▲11980	10.00/20	11.00/20	Her RXLDH	6–4⅜x5¼	558	6.1	440	180–2600	7–3x13¾	Y	Fu	5	Own	2B	H	** –8.15	Own	W....A	696	1039	e	F	72	10 ⅛x3x ⅛	T
48	(C).....R5-4	134	134	15500	▲5100	7.50/20D	7.50/20	Ford	8–3 ⅛x3¾	239	6.4	180	100–3800	3–2 ⅛x4.71	N	Ford	4	Ford	S	H	** –6.67	Own	F....H	302	506	a	F	60 ⅛	7x2¼x ⅛	T
49	(C).....R6-4	158	158	15500	▲5331	7.50/20D	7.50/20	Ford	8–3 ⅛x3¾	239	6.4	180	100–3800	3–2 ⅛x4.71	N	Ford	4	Ford	S	H	** –6.67	Own	F....H	302	506	a	F	84 ⅛	7x2¼x ⅛	T
50	(C).....LD7-4	114	....	5300	▲3500	15"	15"	Ford	8–3 ⅛x3¾	239	6.4	180	100–3800	3–2 ⅛x4.71	N	Ford	4	Ford	S	H	** –4.27	Own	F....H	178	259	A	F	40 ⅛	5½x2¼x ⅛	T
51	(C).....R3-4	122	....	6800	▲4100	7.50/17	7.50/17	Ford	8–3 ⅛x3¾	239	6.4	180	100–3800	3–2 ⅛x4.71	N	Ford	4	Ford	S	H	** –4.86	Own	F....H	188	308	A	F	48	6x2¼x ⅛	T
52	(C).....R4-4	134	....	10000	▲4900	7.00/20S	7.00/20	Ford	8–3 ⅛x3 ⅜	239	6.4	180	100–3800	3–2 ⅛x4.71	N	Ford	4	Ford	S	H	** –5.83	Own	F....H	302	506	A	F	60 ⅛	7x2 ⅜x ⅛	T
53	(C)..R5-A-COE4	110	158	15500	▲5360	7.50/20D	7.50/20	Ford	8–3 ⅛x3 ⅜	239	6.4	180	100–3800	3–2 ⅛x4.71	N	Ford	4	Ford	S	H	** –6.67	Own	F....H	302	506	A	F	60 ⅛	7.08x2.8x ⅜	T
54	(C).....V5-4	134	176	17000	▲5294	7.50/20D	8.25/20	Ford	8–3 ⅛x3 ⅜	239	6.4	180	100–3800	3–2 ⅛x4.71	N	Ford	4	Ford	H	H	** –6.80	Own	F....H	302	506	A	F	60	7.08x2.79x ⅛	T
55	(C).....Q5-4	136	....	21500	▲7100	9.00/20	10.00/20	Ford	8–3 ⅛x4 ⅜	337	6.4	255	145–3600	3–2 ⅛x5.21	Y	Ford	5	Ford	H	H	** –6.80	Own	F....H	444	697	A	F	61	9x3x ⅛	T
56	(C).....Q6-4	160	....	21500	▲7200	9.00/20	10.00/20	Ford	8–3 ⅛x4 ⅜	337	6.4	255	145–3600	3–2 ⅛x5.21	Y	Ford	5	Ford	H	H	** –6.80	Own	F....H	444	697	A	F	73	9x3x ⅛	T
57	(C).....Q7-4	196	....	21500	▲7350	9.00/20	10.00/20	Ford	8–3 ⅛x4 ⅜	337	6.4	255	145–3600	3–2 ⅛x5.21	Y	Ford	5	Ford	H	H	** –6.80	Own	F....H	444	697	A	F	85	9x3x ⅛	T
58	(C).....Q-L4	148	....	21500	▲7150	9.00/20	10.00/20	Ford	8–3 ⅛x4 ⅜	337	6.4	255	145–3600	3–2 ⅛x5.21	Y	Ford	5	Ford	H	H	** –6.80	Own	F....H	444	697	A	F	104	8x3x ⅛	T
59	(C).....Q6-L4	179	....	21500	▲7275	9.00/20	10.00/20	Ford	8–3 ⅛x4 ⅜	337	6.4	255	145–3600	3–2 ⅛x5.21	Y	Ford	5	Ford	H	H	** –6.80	Own	F....H	444	697	A	F	121	9x3x ⅛	T
60	Oshkosh....W-212	144	159	21000	▲ 8430	9.00/20D	9.00/20	Her JXLD	6–4x4½	339	...	272	130–3000	7–2½x10 ⅜	Y	Fu 5A43	5	Own W212	SF	H	** –7.2	Own W212	T4IHDV	401	665	Co	PX	82	8x3x¼	Tf
61	.....W-312	149	205	25000	▲10000	10.00/20D	11.00/20	Her WXLCO3	6–4¼x4¾	404	...	312	139–2600	7–2⅝x13¾	Y	Fu 5A43	5	Own W312	SF	H	** –7.8	Own W312	T4IHDV	510	876	G	PX	82	8¼x3x⅝	TF
62	.....W1700	150	205	28000	▲11000	11.00/20D	12.00/20S	Her RXC	6–4⅝x5¼	529	...	395	131–2200	7–3x13¼	Y	Fu 5A620	5	Own W1700	SF	H	** –6.4	Own 1700	T4IHDV	570	980	G	PX	82	8¼x3x⅝	TF
63	.....W-700	150	205	30000	▲12000	11.00/20D	12.00/20	Her RXCO	6–4⅝x5¼	529	...	395	131–2200	7–3x12¾	Y	Fu 5A650	10	Own W700	2F	H	** –6.8	Own W700	L4IHV	630	975	G	PX	82	10⅛x3x¼	TF
64	(D)....W-703D	150	205	30000	▲12700	11.00/20D	12.00/20	Her DRXC	6–4 ⅝x5 ¼	529	...	398	147–2200	7–3 ½x13 ¼	Y	Fu 5A650	10	Own W700	2F	H	** –6.8	Own W700	L4IHV	630	975	G	PX	82	10 ⅛x3x ¼	TF
65	.....W-703	150	205	30000	▲12200	11.00/20D	12.00/20	Her RXLD	6–4¾x5¼	558	...	430	150–2200	7–3½x13¼	Y	Fu 5A650	10	Own W700	2F	H	** –6.8	Own W700	L4IHV	630	975	G	PX	82	10⅛x3x⅝	TF
66	.....W-705	150	205	30000	▲12200	11.00/20D	12.00/20	Her RXLD	6–4¾x5¼	558	...	430	150–2200	7–3½x13¼	Y	Fu 5A650	10	Own W700	2F	H	** –6.8	Own W700	L4IHV	630	975	G	PX	82	10⅛x3x⅝	TF
67	.....W-712	150	205	34000	▲12500	11.00/20D	12.00/20	Her RXLDH	6–4¾x5¼	558	...	462	190–2600	7–3½x13¾	Y	Fu 5A650	5	Own W712	2F	H	** –6.8	Own W712	L4IHV	630	975	G	PX	82	10⅛x3x⅝	TF
68	(D).....W-906	158	181	38000	▲15600	12.00/20D	14.00/20S	Cum HB600	6–4¼x6	672	...	500	150–1800	7–4½x16	Y	Fu 4A86	12	Own W906	2F	H	** –6.15	Own W906	LT4IA	645	1190	G	PX	90	10½x3½x¾	TF

(Turn to Page 92, Please)

▲ Includes cab.
†† —Two speed 6.13–8.10 optional.
† —Two speed 6.13–8.10 and H.D. 6.20 or 6.80 optional.
* —Complete vehicle with pick-up type body.

You've never before had a piston ring to compare with Hastings Chrome-Faced Steel-Vent.

This famous ring is engineered for replacement service—and for *all* replacement service. It's the right ring for every re-bore, re-ring and re-sleeve job.

And now it's chrome-faced for heavy-duty service. Now it gives three to four times the life you'd expect—under tough, abrasive conditions. It gives greater resistance to wear, to scuffing, to acids under all conditions.

Truck and bus owners and maintenance men say it saves money on every installation. It will pay you to specify Hastings Chrome Sets for your next job.

HASTINGS MANUFACTURING CO., HASTINGS, MICHIGAN
Hastings Ltd., Toronto

FOR CAST IRON RING SETS, ASK FOR **HASTINGS DUBL-CHECK**

Where price is a factor, or special sales conditions exist, Hastings Dubl-Check Sets are the answer. Made of high-graphitic iron, these rings seat quickly, give long and trouble-free service. You can't buy a better cast iron set.

HASTINGS

Steel-Vent Piston Rings

TOUGH *on oil-pumping* • **GENTLE** *on cylinder walls*

CHROME-FACED FOR HEAVY-DUTY SERVICE

(Continued from Page 90)

Line Number	MAKE AND MODEL	Chassis List Price	WHEEL-BASE Minimum Standard	WHEEL-BASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear: Standard Front and Rear	TIRE SIZES: Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings: Number Diameter and Length	Governor Standard	TRANSMISSION: Make and Model	Forward Speeds	REAR AXLE: Make and Model	Gear and Type	Drive & Torque	Gear Ratio Range in High	FRONT AXLE: Make and Model	BRAKES SERVICE: Make Location Type Operation	Lining Area	Drum Area	Drum Material	Hand Location Type	C-A Dimensions (Min. Std. W. B.)	FRAME: Side Rail Dimensions	Type
	Oshkosh, Cont.																													
1	(D) W906R	.....	158	181	39000	▲15700	12.00/20D	14.00/20S	Cum HRB-600	6–5½x6	743	...	540	165–1800	7–4½x16	Y	Eu 4A86	12	Own W906R	2F	H	** –6.15	Own W906R	LT4IA	645	1190	G	PX	90	10½x3 ¼x1½	TF
2	..... W2200	.....	160	181	40000	▲16500	13.00/20D	14.00/20S	Bu MO779	6–5½x6	779	...	575	188–2100	7–3¾x17	Y	Fu 4A86	12	Own W2200	2F	H	** –6.15	Own 2200	LT4IA	645	1190	G	PX	90	10½x3½x1½	Tf
3	..... W2201	.....	160	181	40000	▲16500	13.00/20D	14.00/20S	Bu MO893	6–5½x6	893	...	670	200–1800	7–3¾x17	Y	Fu 4A86	12	Own W2201	2F	H	** –6.15	Own 2201	LT4IA	645	1190	G	PX	90	10½x3½x1½	TF
4	(D) W2204	.....	160	181	46000	▲18500	13.00/20D	14.00/20S	Bu 6DC844	6–5¼x6 ½	844	...	605	180–1800	7–3½x17	Y	Fu 4A86	12	Own W2204	2F	H	** –6.4	Own 2204	LT4IA	780	1190	G	PX	90	10½x3½x1½	TF
5	(D) W2205	.....	160	181	54000	▲19500	13.00/24D	14.00/24	Bu 6DC8844	6–5½x6 ½	844	...	740	240–2100	7–3¾x17	Y	Fu5A920	10	Own W2205	2F	H	** –6.3	Own W2205	LT4IA	780	1190	G	PX	90	10½x3¾x1½	LF
6	..... W2206	.....	160	181	54000	▲19000	13.00/24D	14.00/24	HS 400	6–5¾x7	■	...	930	295–2000	7–3¼x14 ‡	Y	Fu5A1120	10	Own W2206	2F	H	** –6.3	Own W2206	LT4IA	780	1190	G	PX	90	10½x3½x1½	LF
7	(D) WA2208	.....	160	181	40000	▲16800	13.00/20D	14.00/20S	Cum NHB-600	6–5½x6	743	...	535	200–2100	7–4½x16½	Y	Fu 4A86	12	Own W2208	2F	H	** –6.15	Own W2208	LT4IA	645	1190	G	PX	90	10½x3½x1½	TF
8	(D) W2209	.....	160	181	54000	▲19500	13.00/24D	14.00/24	Cum NHRS600	6–5½x6	743	...	800	300–2100	7–4½x16½	Y	Fu 5A1120	10	Own W2209	2F	H	** –6.30	Own W2209	LT4IA	780	1190	G	PX	90	10½x3½x1½	LF
9	Sterling DD115	.....	160	178	32000	11500	10.00/20	11.00/24	Wau 6SRKR	6–4½x5½	517	5.5	368	125–2250	7–3x13¼	Y	Fu 5A624‡	10	Tim 1357W	2F	H	6.52–8.6	Tim F3110W	Ws4IA	644	984	A	TX	76	9x3¼x¼	A
10	(D) DD145H	.....	167	185	36000	13900	11.00/20	12.00/24	Cum HB600	6–4¼x6	672	17.	500	150–1800	7–4½x16½	Y	Fu 4B86▼	10	Tim 1758W	2F	H	7.33–10.3	Tim F409CW	Ws4IA	644	984	A	TX	77	9¼x3½x1½	A
11	Walter (c.f.) .. FZM	.....	126	150	24000	9000	12.00/20S	.....	Wau MZA	6–4¼x4¼	404	5.6	290	125–2600	7–2½x12½	Y	Own FJN	6	Own MS	2	H	** –8.00	Own FJ	O4IA	470	670	G	FI	84	12x3½x½	B
12	(c.f.) ..... AEB	.....	126	150	32000	13000	12.00/24S	.....	Wau 140GZ	6–4½x5½	554	6.2	440	150–2250	7–3¼x14	Y	Own FC	6	Own FCC	2	H	** –9.00	Own FC	O4IA	585	890	G	FI	96	14x3¾x½	B
13	(c.f.) ..... AGB	.....	138	162	32000	14000	12.00/24S	.....	Wau 145GK	6–5¼x6	779	6.2	585	185–2000	7–3½x17¾	Y	Own FA	6	Own FCC	2	H	** –9.00	Own FC	O4IA	585	890	G	FI	108	14x3¾x½	B
14	(c.f.) ..... AGR	.....	138	162	42000	15000	12.00/24D	.....	Wau 145GK	6–5¼x6	779	6.2	585	185–2000	7–3½x17¾	Y	Own FA	6	Own FCR	2	H	** –9.00	Own FC	O4IA	585	890	G	FI	108	14x3¾x½	B
15	Ward La Fr. .. FD1	.....	.....	.....	35000	▲11500	11.00 /22	11.00/22	Cont 6513	6–4½x5½	513	5.9	405	180–2800	7–3¼x14½	..	Ful 5A620	5	Tim R462W	S2	R	** –8.15	Tim F3100W	BW4IA	627	1029	Co	PM	.....	10x3x ‡	C
16	(D) FD2	.....	.....	.....	35000	▲12000	11.00/24	11.00/24	Cum HB600	6–5½x6	672	17.	500	150–1800	7–4½x16¾	..	Ful 5A920	5	Tim R462W	S2	R	** –8.15	Tim F3100W	BW4IA	627	1029	Co	PM	.....	10x3x ‡	C
17	Willys Jp. CJ-3A	1195*	80	80	3500	*2108	6.00/16S	7..0/15S	Own CJ-3A	4–3½x4½	134	6.5	105	60–4000	3–2.33x5.48	N	WG T90C	‡6	Spi 41	Hy½	H	** –5.38	Spi 25	B4IH	118	198	a	F	.....	4x1¾x ‡	P
18	..... 4WD	1597*	118	118	5300	*3115	7.00/16S	.....	Own 473	4–3½x4½	134	7.4	114	72–4000	3–2.33x5.48	N	WG T90C	‡6	Tim 51540	S½	H	** –5.38	Spi 25	B4IH	176	276	a	2I	42.28	5½x2x ‡	TD
	Six-Wheelers Wheels ▼ Driven																													
	Corbitt																													
19	..... G302R34-4R	.....	173	....	34500	.....	8.25/20	9.00/20	Con B6427	6–4 ‡x4½	427	5.9	325	127–2600	7–2½x13½	Y	Fu 5A430	5	Tim 1055	SdF	L	5.71–7.40	Tim 35000	Ws6IA	.....	.....	a	TX	88	8½x3¼x ‡	TL
20	..... G402R40-4R	.....	173	....	40000	.....	9.00/20	10.00/20	Con T6427	6–4 ‡x4½	427	6.3	336	151–2600	7–2½x13½	Y	Fu 5A620	5	Tim 1555	SdF	L	5.57–7.80	Tim 35000	Ws6IA	731	1058	a	TD	88	8½x3¼x ‡	TL
21	(T) (D) D808Q46-2C	.....	136	....	46000	.....	10.00/20	11.00/22	Cum HRBB600	6–5½x6	743	17.	540	175–2000	7–4½x16½	Y	Fu 5C720	5	Tim R300	2F	H	4.93–5.91	Tim FE900	Ws6IA	1032	1578	a	2M	68	8x3¼x¼	TL
22	(D) D802R46-4R	.....	188	....	46000	.....	10.00/20	11.00/20	Cum HRB600	6–5½x6	743	17.	540	165–1800	7–4½x16½	Y	Fu 10B1120	10	Tim SW3022	WF	L	4.71–6.17	Tim FE900	Ws6IA	1073	1554	a	TD	84	10½x3¼x¼	TL
	Dodge																													
23	B2VXL, B2VX	.....	154	190	34000	.....	9.00/20	10.00/20	Own T159	6–3¾x5	331	6.5	270	128–3000	7–3x11.2	Y	NP 88450	5	Tim SBD1555	HyS	L	6.8– 7.8	Tim35020NX9	T6IA	737	1056	C	TX	84	10x3x¼	CP
24	B2YXL, B2YX	.....	154	190	40000	.....	10/20D	10.00/20	Own T199	6–4x5	377	6.5	330	154–3000	7–3x11.23	Y	Cla 290V2	5	T SD3010P	2	•L	** –8.27	Tim FD900	T6IA	959	1470	c	TX	84	10½x3 ‡x ‡	CP
25	Duplex TH6	.....	162	220	30000	9180	8.25/20	9.00/20	Her JXD	6–4x4½	320	6.2	240	113–3000	7–2¼x10‡‡	Y	Fu 5B33‡	10	Tim SBD1055	BF	L	**–6.16	Tim 32502H	L6IHV	513	839	A	TX	83½	9½x3 ½x ‡	L
26	..... RH-6	.....	160	208	40000	11500	10.00/20	11.00/20	Her WXLC3	6–4¼x4¾	404	5.8	31.	139–2600	7–2¾x13¼	Y	Fu 5A43	5	Tim SD3010	2F	R	8.27	Tim FD900	WS61A	1075	1525	A	TX	73¼	10½x3½x ‡	L
27	(D) L6	.....	172	208	45000	15000	11.00/20	12.00/20	Cum HB600	6–4 ½x6	672	17.	495	150–1800	7–4 ½x16 ½	Y	Fu 5A920	5	Tim SD454	SF2	L	6.8–8.15	Tim FE900	Ws6IA	1137	1625	A	TX	77 ½	10 ½x3½x ‡	L
28	Federal 663MA	.....	179	225	42000	14500	10.00/20	10.00/22	Con R6602‡‡	6–4½x5½	602	...	466	205–3000	7–3¼x14½	Y	Fu 5A65▼	15	T SW3012P†	WF	R	** –6.16	Tim FE900	Ws6IA	1082	1569	a	TD	108	10½x3½x ‡	TfL
29	..... 664MAB	.....	179	225	60000	15850	11.00/22	12.00/20	Con R6602‡‡	6–4½x5½	602	...	466	205–3000	7–3¼x14½	Y	Spi 7741▼	12	Tim SW456P	WF	R	** –7.6	Tim 27452W	Ws6IA	1308	1888	a	TD	108	10½x3½x ‡	TfL
30	..... 664MA	.....	179	225	60000	1o950	11.00/22	12.00/20	Con R6602‡‡	6–4½x5½	602	...	466	205–3000	7–3¼x14½	Y	Spi 7741▼	12	Tim SD462P	BR	R	** –8.15	Tim 27452W	Ws6IA	1092	1624	a	TD	108	10½x3½x ‡	TfL
31	..... 629M	.....	163	199	33000	8600	8.25/20	9.00/20	Her JXDF	6–4x4¼	320	...	250	131–3200	7–2½x10‡‡	Y	Cla 205V‡‡▲	10	TSBD1055dph	SF	R	7.53 10.35	Tim 32514H	LT61HV	544	914	a	TX	84	9 ‡x3½x¼	TL
32	..... 629ML	.....	163	199	33000	8635	8.25/20	9.00/20	Her JXLDF	6–4x4½	339	...	272	131–3200	7–2½x10‡‡	Y	Cla 205V‡‡▲	10	TSBD1055dph	SF	R	7.53 10.35	Tim 32514H	LT61HV	544	914	a	TX	84	9 ‡x3½x¼	TL
33	..... 635M	.....	167	203	38000	10400	9.00/20	10.00/20	Con T6371F	6–4½x4½	371	...	290	140–3000	7–2½x13½	Y	Cla 290V▲	10	TSBD1555dph	SF	R	8.33 11.47	Tim FD900	LT61HV	752	1132	a	TX	84‡	10½x3½x ‡	TL
34	..... 645M	.....	167	215	40000	12325	10.00/22	10.00/22	Con T6427‡‡	6–4 ‡x4½	427	...	347	155–2600	7–2½x13½	Y	Cla 290V	5°	T-SD3010P♦	BR	R	** –9.16	Tim FD900	Ws6IA	1073	1550	a	TD	84½	10½x3½x ‡	TfL
	Freightliner																													
35	(c.o.e.) A64	.....	176	....	54000	▲14000	10.00/22	.....	Cum NHB	6–5½x6	743	13½	575	200–2100	7–4½x16½	Y	Fu 4B86‡	12	Own	WF	H	6.66–8.20	Tim 27061	O4RIA	966	1450	a	TD	136	10½x3½x¼	D
36	F.W.D. H6x6G	.....	Opt	Opt	.....	▲12150	9.00/20D	10.00/20	Wau MZA	6–4¼x4¾	404	5.6	291	130–3000	7–2¾x12½	Y	Own H	10	Own H	SF	H	** –7.45	Own H	L6IHV	647	1281	a	T6	Opt	9x3x¼	C
37	..... HRC6X6G	.....	Opt	Opt	.....	▲12620	9.00/20D	10.00/20	Wau 140GKB	6–4½x5½	525	6.4	425	172–2600	7–3¼x13‡‡	Y	Own H	10	Own H	SF	H	** –7.4	Own H	L6IHA	647	1281	a	T6	Opt	9x3x¼	C
38	..... MU6X6G	.....	Opt	Opt	.....	▲16000	11.00/20D	12.00/20	Wau 145GK	6–5¼x6	779	6.2	590	186–2000	7–3½x17¾	Y	Own U	10	Own U	SF	H	** –4.9	Own U	Ww6IA	726	1463	a	T6	Opt	10 ‡x3x‡‡	C
39	..... M6x6G	.....	Opt	Opt	.....	▲21000	11.00/24D	12.00/24	Wau 145GK	6–5¼x6	779	6.2	590	186–2000	7–3½x17¾	Y	Own M	10	Wis SD462	2F	I.	** –6.06	Wis F409	WW6IA	1080	1680	a	T6	Opt	10 ‡x3x‡‡	P
40	(D) M6X6D	.....	Opt	Opt	.....	▲21600	11.00/24D	12.00/24	Bu DC844	6–5¾x6½	844	...	605	180–1800	7–3¾x17	Y	Own M	10	Wis SD462	2F	I.	** –5.6	Wis F409	WW6IA	1080	1680	a	T6	Opt	10 ‡x3x‡‡	P
41	Kenworth. (D) .522	.....	191	255	42000	13900	10.00/20	11.00/22	Cum HB6	6–4½x6	672	17.	500	150–1800	7–4½x16 ‡	Y	BL 8241	4	T U200Pa††	H2F	H	5.91–9.76	Tim FE900N	Ws4IA	880	1368	a	TD	100	9½x3½x ‡	C
42	..... (D) 523.4R	.....	191	255	42000	14600	10.00/20	11.00/22	Cum HB6	6–4½x6	672	17.	500	150–1800	7–4½x16 ‡	Y	BL 8241	4	T SW3012PA	WF	L	4.72–6.16	Tim FE900N	Ws4rIA	868	1400	a	TD	100	9½x3½x ‡	C
43	..... (D) 524 .4R	.....	195	255	42000	15500	10.00/20	11.00/22	Cum HB6	6–4½x6	672	17.	500	150–1800	7–4½x16 ‡	Y	BL 8241	4	Tim SW456P	WF	L	5.67–8.20	Tim FE900N	Ws4rIA	1016	1556	a	TD	104	9½x3½x ‡	C
44	..... (D) 548 .4R	.....	191	....	60000	20200	11.00/22	12.00/24	Cum HB6	6–4½x6	672	17.	500	150–1800	7–4½x16 ‡	Y	BL 8241	4	Tim SFD460P	B2F	L	8.07–11.5	Tim FE900N	Ws4rIA	1016	1556	a	TD	100	9½x3½x ‡	abC
45	..... (D) 552 .4R	.....	202	....	50000	21000	13.00/24	13.00/24	Cum HB6	6–4½x6	672	17.	500	150–1800	7–4½x16 ‡	Y	BL 8241	4	Tim SFD460P	B2F	L	8.07–11.5	Tim FE900N	Ws4rIA	1016	1556	a	TD	111	9½x3½x ‡	dbC
46	(D) ..... 584 .4R	.....	191	....	95000	24200	12.00/24	14.00/24	Cum HB6	6–4½x6	672	17.	500	150–1800	7–4½x16 ‡	Y	BL 8241	4	Tim SD472P	B2F	L	8.07–11.5	Shu 12	Ws4rIA	1312	1956	a	TD	100	9½x3½x ‡	dbC
47	(D) ..... 825 .4R	.....	195	255	42000	14400	10.00/20	11.00/22	Cum HB6	6–4½x6	672	17.	500	150–1800	7–4½x16 ‡	Y	BL 8241	4	T GSW458P	WF	L	5.67–8.20	Tim FE900N	Ws4rIA	1016	1556	a	TD	104	9½x3½x ‡	C
48	..... 829 .4R	.....	178	255	42000	13600	10.00/20	11.00/22	Wau 140GZ	6–4½x5½	5546	4	450	188–2600	7–3x13‡‡	Y	Fu 5C850	5	T SD3010PA	B2F	L	6.84–10.2	Tim FE900N	Ws4rIA	868	1400	a	TD	87	9½x3½x ‡	C
49	(D) ..... 888 .4R	.....	194	....	110000	29000	14.00/24	.....	Cum NHB6	6–5½x6	743	15.	535	200–2100	7–4½x16 ‡	Y	BL 8241	4	Tim CDB79	CD	.	** 14.71	Shu 12	Ws6IA	....	2447	a	TD	103	10½x3½x‡‡	L
	Marmon-Herr.																													
50	(C) R5-6	.....	156	....	22500	▲6850	7.50/20D	7.50/20	Ford	8–3 ‡x3½	239	6.4	180	100–3800	3–2 ‡x4.71	N	Ford	4	Timken	S	H	** –6.67	Own	F–H	503	836	a	F	82 ‡	7 ½x3x ¼	C
51	(C) R6-6	.....	180	....	22500	▲7100	7.50/20D	7.50/20	Ford	8–3 ‡x3½	239	6.4	180	100–3800	3– ‡x4.71	N	Ford	4	Timken	S	H	** –6.67	Own	F–H	503	836	a	F	106 ¼	7 ½x3x ¼	C
52	..... MH440-6	.....	182	....	34000	▲10600	9.00/20	10.00/20	Her WXLC3	6–4¼x4¾	404	5.4	239	118–2800	7–2½x13¼	Y	Fu	5	Own	2B	H	** –8.43	Own	Ws. .A	876	....	C	F	96	9 ‡‡ x3x ¼	T
53	..... MH-555-6	.....	182	....	42000	▲14900	11.00/20	11.00/20	Her RXC	6–4½x5½	529	6.3	390	131–2200	7–3x13¼	Y	Fu	5	Own	2B	H	** –8.15	Own	Ws. .A	1092	1608	C	F	93	10 ‡x3x ‡	T
54	(C) ... R5-COE6	.....	156	180	22500	▲7350	7.50 /20D	7.50 /20	Ford	8–3 ‡x3 ½	239	6.4	180	100–3800	3–2 ½x4.71	N	Ford	4	Ford	S	H	** –6.67	Own	F. . . H	303	563	A	F	106.1	7.08x2.8x ½	T
55	(C) Q-5-6	.....	160	....	35000	▲9550	9.00 /20	10.00 /20	Ford	8–3 ½x4 ½	337	6.4	255	145–3600	3–2 ½x5.21	Y	Ford	5	Ford	H	H	** –6.80	Own	F. . . H	772	1161	A	F	85	9x3x ¼	T
56	(C) Q-6-6	.....	184	....	35000	▲9700	9.00 /20	10.00 /20	Ford	8–3 ½x4 ½	337	6.4	255	145–3600	3–2 ½x5. 21	Y	Ford	5	Ford	H	H	** –6.80	Own	F. . . H	772	1161	A	F	109	9x3x ¼	T

▲ Includes Cab.
‡‡ Overdrive optional.

(Turn to Page 94, Please)

* Complete vehicle with pick-up type body
†† Timken T13126 PA Trailing Axle.
‡ Model SW3010 obtainable. † SW3013 obtainable.
Auxiliary transmission Spicer 703F or 8031 with 3 forward speeds.

‡ Three speed transmission—2 speed transfer case.
▲ Torque divider, Timken T70–2 speed., T50 obtainable.
** Hydraulic Coupling. ‡‡ Diesel engine obtainable.
‡—Torque Divider, Timken T70-2 speed. ♦—Timken T76-Two speed transfer case.

□ Chassis weights on duals Front, Center and Rear.
‡—Fuller 3B92 auxiliary transmission. ■—1091 cu. in.
• Auxiliary transmission Spicer 6231B at extra cost gives 15 forward speeds.
▼ Timken T77 2-speed Transfer Case.

Only **ONE** *can bear this famous name!*

Copying the Spicer Universal Joint appearance is easy enough. And commonly done. But no one else can put *into* a joint the priceless combination of ingredients, know-how and lore that makes the Spicer unit so individual . . . so exclusive in features . . . so outstanding in performance.

No other universal joint has behind it the 46-year experience of Spicer. No other engineering staff is so generously manned with competent joint-designing skill. No plant has such a big investment in universal joint production and testing equipment as Spicer. With so many features that cannot be duplicated, is it any wonder that Spicer Universal Joints are the "Standard of the Industry?"

46 YEARS OF **Spicer** SERVICE

SPICER MANUFACTURING
Division of Dana Corporation
TOLEDO 1, OHIO

TRANSMISSIONS • PASSENGER CAR AXLES • CLUTCHES • PARISH FRAMES • RAILWAY GENERATOR DRIVES
STAMPINGS • FORGINGS • TORQUE CONVERTERS • UNIVERSAL JOINTS • SPICER "BROWN-LIPE" GEAR BOXES

(Continued from Page 92)

Line Number	MAKE AND MODEL	Chassis List Price	WHEEL-BASE Minimum Standard	WHEEL-BASE Maximum Standard	Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES D-dual rear S-single rear: Standard Front and Rear	TIRE SIZES: Maximum Authorized Tire Size (Duals unless noted)	ENGINE DETAILS: Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M. Given	Main Bearings: Number Diameter and Length	Governor Standard	TRANSMISSION: Make and Model	Forward Speeds	REAR AXLE: Make and Model	Gear and Type	Drive & Torque	Gear Ratio Range in High	FRONT AXLE: Make and Model	BRAKES SERVICE: Make Location Type Operation	Lining Area	Drum Area	Drum Material	Hand Location Type	C-A Dimensions (Min. Std. W. B.)	FRAME: Side Rail Dimensions	Type
	Marmon-Herr. Cont.																														
1	(C).....Q-5L-6	172		35000	♠9650	9.00/20	10.00/20	Ford	8–3½x4¾	337	6.4	255	145–3600	3–2⅞x5.21	Y	Ford	5	Ford	H	H	** –6.80	Own	F...H	772	1161	A	F	97	9x3x¼	T
2	(C).....Q-6L-6	203		35000	♠9825	9.00/20	10.00/20	Ford	8–3½x4¾	337	6.4	255	145–3600	3–2⅞x5.21	Y	Ford	5	Ford	H	H	** –6.80	Own	F...H	772	1161	A	F	128	9x3x¼	T
	Oshkosh																														
3	....W712-6X6	178	Opt	47000	17900	11.00/20D	12.00/20	Her RXLDH	6–4⅜x5¼	558		462	190–2600	7–3½x13¼	Y	Fu 5A650	10	Tim SFD450	2F	H	** –6.31	Own-Tim	LT6IA	1156	1889		Opt	110	10½–3½–⅜	B
4	(D)....W1500CD	Opt	Opt	47000	19300	11.00/20	12.00/20	Cum HB600	6–4½x6	672		500	150–1800	7–4½x16	Y	Fu 4A86	8	Tim SFD-450	2F	H	** –6.31	Own Tim	LT6IA	1156	1889	G	Opt	Opt	10½–3½–⅜	B
5	(D)....W1600BD	Opt	Opt	60000	22770	11.00/24D	12.00/24	Bu 6DC844	6–5¼x6½	844		600	180–1800	7–3¾x17	Y	Fu 4BI86	12	Tim SFD460	2F	H	** –6.14	Own-Tim	LT6IA	1156	1889	G	Opt	Opt	12¾–3¾–⅜	B
6	(D)...°°W1600BDH	Opt	Opt	60000	24300□	11.00/24D	12.00/24	Bu 6DC844	6–5¼x6½	844		600	180–1800	7–3¾x17	Y	Fu 4BI86	12	Tim SFD460	2F	H	** –9.82	Own-Tim	LT6IA	1156	1889	G	Opt	Opt	12¾–3¾–⅜	B
7	(D)...°°W1602BDH	Opt	Opt	95000	29300	14.00/24D	14.00/24	Bu 6DC844	6–5¼x6½	844		600	180–1800	7–3¾x17	Y	Fu 4BI86	12	Tim SD472	2F	H	** –13.9	Own-Tim	LT6IA	....	2217	G	Opt	Opt	12¾–3¾–⅜	B
8	.....W1600BG	Opt	Opt	60000	22770	11.00/24D	12.00/24	Bu MO893	6–5⅜x6	893		625	200–1800	7–3¾x17	Y	Fu 4BI86	12	Tim SFD460	2F	H	** –9.82	Own-Tim	LT6IA	1156	1189	G	Opt	Opt	12¾–3¾–⅜	B
9	(D)....W1660CD	Opt	Opt	60000	23400□	11.00/24D	12.00/24	Cum HB600	6–4⅞x6	672		500	150–1800	7–4½x16	Y	Fu 4BI86	12	Tim SFD460	2F	H	** –6.14	Own-Tim	LT6IA	1156	1189	G	Opt	Opt	12¾–3¾–⅜	B
10	(D)..°°W1600CDH	Opt	Opt	60000	24000□	11.00/24D	12.00/24	Cum HB600	6–4⅞x6	672		500	150–1800	7–4½x16	Y	Fu 4BI86	12	Tim SFD460	2F	H	** –9.82	Own-Tim	LT6IA	1156	1189	G	Opt	Opt	12¾–3¾–⅜	B
	Peterbilt																														
11	(D).....350	193	Opt	42000	.....	10.00/20D	11.00/22	Cum HB600	6–4⅞x6	672	17.	500	150–1800	7–4½x16½	Y	Spi 8041	12	Tim SW3022	WF	R	6.00– 8.5	Tim FE900DPA	Ws6IA	1125	1569		TD	99½	10⅝x3½x⅞	CT
12	(D).....360	198	Opt	54000	.....	10.00/20D	11.00/22	Cum HB600	6–4⅞x6	672	17.	500	150–1800	7–4½x16½	Y	Spi 8041	12	Tim SW456W	WF	R	6.00–10.2	Tim FE900DPA	Ws6IA	1005	1517		TD	104⅞	10⅝x3½x⅞	CT
13	(D).....370	194	Opt	58000	.....	10.00/20D	11.00/22	Cum HB600	6–4⅞x6	672	17.	500	150–1800	7–4½x16½	Y	Spi 8041	12	Tim SW456W	WF	R	6.00–10.2	T 27463	Ws6IA	1084	1626		TD	104⅞	10⅝x3½x⅞	CT
14	(D).....380	194	Opt	58000	.....	10.00/20D	11.00/22	Cum HB600	6–4⅞x6	672	17.	500	150–1800	7–4½x16½	Y	Spi 8041	12	Tim SD462W	2F	R	** –8.07	T 27463	Ws6IA	1084	1626		TD	98½	10⅝x3½x⅞	CT
15	(D).....390	197	Opt	79000	.....	12.00/24	14.00/24	Cum HB600	6–4⅞x6	672	17.	500	150–1800	7–4½x16½	Y	Spi 8041	12	Tim SD472W	2F	R	** –8.07	T 27463	Ws6IA	1622	2215		TD	103½	10⅝x3½x⅞	CT
16	Reo.....E-216	150	203	28000	9615▲	8.25/20	9.00/20	Own 292	6–3⅞x4½	292	6.5	224	124–3300	7–2½x9.408	Y	Cla 205V	5	Tim SBD1055	SF	T	5.28–7.4	Tim 32500	LT6IVH	500	842	var	TX	85¾	9¼x3	TfP
17	.....E-226	150	203	36000	10250▲	9.00/20	10.00/20	Own 331	6–4½x4½	331	6.4	264	140–3200	7–2½x9.408	Y	Cla 205V	5	Tim SFD157	F2	T	6.49–7.66	Tim FD900	T6IVH	670	1134	var	TX	85½	9¼x3	TfP
18	.....E-236	159	200	42000	12980▲	10.00/20	11.00/20	Con T6427	6–4⅞x4½	427	5.9	338	145–2600	7–2½x13.6	Y	Cla 270V	5	Tim SD3010	SFd	T	7.5 –8.27	Tim 36000	TWs6IA	1082	1570	var	TD	104⅝	9¼x3	TfB
19	306	186	248	45000	15520▲	10.00/20	11.00/20	Con R6513	6–4½x5½	513	5.7	392	167–2600	7–3¼x14.7	Y	Spi 6252A	5	Tim SD3010	SFd	T	7.5 –8.27	Tim 36000	TWs6IA	1082	1570	var	TD	108½	10½x3½x⅝	Tf
20	316	186	248	55000	16480▲	10.00/20	11.00/22	Con R6602	6–4⅞x5½	602	5.7	456	194–2600	7–3¼x14.7	Y	Spi 6253	5	Tim SD454	SFd	T	7.33–10.27	Tim 36000	TWs6IA	1230	1778	var	TD	108½	10½x3½x⅝	TfB
	Sterling																														
21	.....HBS130	164	183	32000	11000	8.25/20	10.00/20	Wau 6MZA	6–4¼x4½	404	5.6	290	130–3000	7–2½x12½	Y	Fu 5A43	5	T-SBD1555DPH	SF	L	6.80–13.14	T-35011H	T6IHV	664	1134	A	TX	83	9x3 ¼x ¼	A
22	.....HDS140	164	183	36000	11800	9.00/20	10.00/20	Wau 6MZA	6–4¼x4¼	404	5.6	290	130–3000	7–2½x12½	Y	Fu 5A43	5	T-SD3010PA	2F	L	6.84–10.22	T-35011TW	Ws6IA	1074	1554	A	TX	83	9x3 ¼x ¼	A
23	.....HWS160	164	183	42000	12800	10.00/20	11.00/22●	Wau 6SRKR	6–4⅝x5½	517	5.5	368	125–2250	7–3x13¾	Y	Fu 5A62	5	T-SW3010PA	WF	L	5.40–8.50	T-36000TW	Ws6IA	1082	1574	A	TX	83	9x3 ¼x ¼	A
24	.....HWS235	182	193	52000	15700	11.00/20	11.00/24	Wau 145GK	6–5¾x6	779	6.2	585	186–2100	7–3½x17¾	Y	Fu 4B86	4	T-SW456P	WF	L	5.67–8.20	T-27454W	Ws6IA	1308	1892	A	TX	92	9 ¼x3 ⅝x ⅜	A
25	(D)...HWS160H	182	193	42000	14250	10.00/20	11.00/22	Cum HB600	6–4⅞x6	672	17.	500	150–1800	7–4½x16½	Y	Fu 4B86	4	T-SW3012PA	WF	L	4.71–6.17	T-36000TW	Ws6IA	1082	1574	A	TX	92	9x3 ¼x ¼	A
26	(D)...HWS235H	182	193	52000	16000	11.00/20	11.00/24	Cum HB600	6–4⅞x6	672	17.	500	150–1800	7–4½x16½	Y	Fu 4B86	4	T-SW456P	WF	L	5.66–8.20	T-27454W	Ws6IA	1308	1892	A	TX	92	9 ¼x3 ⅝x ⅜	A
27	.....HCS195	170	189	48000	15300	10.00/20	11.00/22	Wau 140GK	6–4½x5½	525	6.0	426	142–2200	7–3¼x13⅞	Y	Fu5A62-3A92	15	Own 195W	CD	R	6.04–7.31	T-36000TW	Ws6IA	1082	1802	A	TX	83	9 ¼x3 ⅝x ⅜	A
28	.....HCS265	182	193	60000	17750	11.00/20	12.00/24	Wau 145GK	6–5¼x6	779	6.2	585	186–2100	7–3½x17¾	Y	Fu 4B86♦	12	Own 265W	CD	R	9.21–13.16	T-27454W	Ws6IA	1060	1912	A	JX	92	9 ¼x3 ⅝x ⅜	A
29	.....HCS297	182	193	70000	20750	12.00/24‡	13.00/24△	Wau 1a5GK	6–5¼x6	779	6.2	585	186–2100	7–3½x17¾	Y	Fu 4B86♦	12	Own 330W	CD	R	9.21–13.16	T-27454W	Ws6IA	1280	1988	A	JX	92	9 ¼x3 ⅝x ⅜	AL
30	.....HCS330	174	187	80000	23150	12.00/24	14.00/24△	Wau 145GK	6–5¼x6	779	6.2	585	186–2100	7–3½x17¾	Y	Fu 4B86♦	12	Own 330W	CD	R	9.21–13.16	T-27454W	Ws6IA	1280	1988	A	JX	91	12x3 ¼x ⅜	AL
31	(D)...HCS195H	182	193	48000	16000	10.00/20	11.00/22	Cum HB600	6–4⅞x6	672	17.	500	150–1800	7–4½x16½	Y	Fu4B86-3A92	12	Own 195W	CD	R	6.04–7.31	T-36000TW	Ws6IA	1082	1802	A	TX	92	9 ¼x3 ⅝x ⅜	A
32	(D)...HCS265H	182	193	60000	18100	11.00/20	12.00, 24	Cum HBD600	6–4⅞x6	672	17.	500	150–1800	7–4½x16½	Y	Fu 4B86♦	12	Own 265W	CD	R	9.21–13.16	T-27454W	Ws6IA	1160	1912	A	JX	92	9 ¼x3 ⅝x ⅜	A
33	(D)...HCS297H	182	193	70000	21050	12.00/24‡	13.00/24△	Cum HBD600	6–4⅞x6	672	17.	500	150–1800	7–4½x16½	Y	Fu 4B86♦	12	Own 330W	CD	R	9.21–13.16	T-27454W	Ws6IA	1280	1988	A	JX	92	9 ¼x3 ⅝x ⅜	AL
34	(D)...HCS330H	174	187	80000	23450	12.00/24	14.00/24△	Cum HBD600	6–4⅞x6	672	17.	500	150–1800	7–4½x16½	Y	Fu 4B86♦	12	Own 330W	CD	R	9.21–13.16	T-27454W	Ws6IA	1280	1988	A	JX	91	12x3 ¼x ⅜	AL
	Truckstell																														
35	(C)...F2X28.2F	156	237	28000	6468▲	7.50/20♦	8.25/20-10	Ford	8–3 x3¾	239	6.8	180	100–38 0	3–2.49x4.9	N	Ford	4	Ford■	SF	H	5.83–8.11	Ford	F6IHV	502	835	°	TX	82½	8x2.8x.46	TL▼
36	(C)F2X29-0(coe)2F	134	224	28500	7033▲	7.50/20♦	8.25/20-10	Ford	8–3 .x3¾	239	6.8	180	100–3800	3–2.49x4.9	N	Ford	4	Ford■	SF	H	5.83–8.11	Ford	F6IHV	502	835	°	TX	82½	8x2.8x.46	TL▼
37	(C) F2X28–7.2F	156	250	28000	7897▲	7.50/20♦	8.25/20-10	Ford	8–3½x4¾	337	6.4	255	145–3600	3–2.87x5.0	Y	Ford	5	Ford	HyF	H	6.8	Ford	F6IHV	560	935	°	TX	82½	9½x3x½	TL▼
38	(C) F2X34-7.2F	156	250	34000	8100▲	8.25/20†	9.00/20-10	Ford	8–3½x4¾	337	6.4	255	145–3600	3–2.87x5.0	Y	Ford	5	Ford	HyF	H	6.8	Ford	F6IHV	560	935	°	TX	82½	9½x3x½	TL▼
39	(C) F2X34-8.2F	156	250	34000	8704▲	9.00/20	9.00/20-10	Ford	8–3½x4¾	337	6.4	255	145–3600	3–2.87x5.0	Y	Ford	5	Ford■	SF	H	6.5 –8.87	Ford	F6IHV	695	1081	§	TX	82½	9½x3x½	C▼
40	(C) F2X40.2F	156	250	40000	9309▲	9.00/20†‡	10.0/20-10	Ford	8–3½x4¾	337	6.4	255	145–3600	3–x .87x5.0	Y	Ford	5	Ford■	SF	H	6.5 –8.87	Ford	F6IHV	835	1232	§	TX	82½	9½x3x½	TL▼
41	(C)...C2X28.2F	157	247	28000	6620▲	7.50/20D	9.00/20-10	Chev.	6–3 x3½	235	6.6	192	93–3100	4 Std.Chev	Y	Chev.	4	Chev.▼	HyF	H	6.17	Chev.	C6IHV	530	808	°	2I	82¾	9½x3x½	C▼
42	(C)C2X29-0(coe)2F	130	224	29000	7204▲	7.50/20D	9.00/20-10	Chev.	6–3 x3½	235	6.6	192	93–3100	4 Std.Chev	Y	Chev.	4	Chev.▼	HyF	H	6.17	Chev.	C6IHV	530	808	°	2I	82¾	9½x3x½	C▼
43	(C) F4X26....4R	144	209	26000	7300▲	7.50/20	8.25/20*	Ford	8–3 x3¾	239	6.8	180	100–3800	3–2.49x4.9	N	Ford	8	Ford	SF	R	** –6.67	Ford	F6IHV	498	836	Co	TX	64	8x3x.46	TL▼
44	(C) F4X27 (coe)4R	126	185	27000	7665▲	7.50/20	8.25/20*	Ford	8–3 x3¾	239	6.8	180	100–3800	3–2.49x4.9	N	Ford	8	Ford	SF	R	** –6.67	Ford	F6IHV	498	836	Co	TX	71	8x3x.46	TL▼
45	.....F4X29	156	200	29000	7850▲	7.50/20	8.25/20-10	Ford	8–3 x3¾	239	6.8	180	100–3800	3–2.49x4.9	N	Ford♦♦	12	Ford	HyF	R	** –7.2	Ford	F6IHV	498	836	Co	TX	64	8x3x.46	TL▼
46	.....F4X30	126	185	30000	8200▲	7.50/20	8.25/20-10	Ford	8–3 x3¾	239	6.8	180	100–3800	3–2.49x4.9	N	Ford♦♦	12	Ford	HyF	R	** –7.2	Ford	F6IHV	498	836	Co	TX	71	8x3x.46	TL▼
47	(C) F4X29....4R	156	200	29000	7800▲	8.25/20	9.00/20	Ford	6–3.5x4.4	254	6.8	212	110–3400	4–2.8x5.0	Y	Ford♦♦	12	Ford	Hy	R	** –7.2	Ford	F6IHV	498	836	Co	TX	82	8x3x.46	TL▼
48	(C) F4X30....4R	126	185	30000	8200▲	8.25/20	9.00/20	Ford	6–3.5x4.4	254	6.8	212	110–3400	4–2.87x5.0	Y	Ford♦♦	12	Ford	Hy	R	** –7.2	Ford	F6IHV	498	836	Co	TX	71	8x3x.46	TL▼
49	(C) F4X34....4R	156	228	34000	10000▲	8.25/20	9.00/20*	Ford	8–3½x4¾	337	6.4	255	145–3600	3–2.87x5.0	Y	Ford ♦♦	15	Ford	HyF	R	** –6.8	Ford	F6IHV	745	1169	Co	TX	82	9½x3x½	TL▼
50	(C) F4X38....4R	156	228	38000	10650▲	9.00/20	10.00/20*	Ford	8–3½x4¾	337	6.4	255	145–3600	3–2.87x5.0	Y	Ford ♦♦	15	Ford	HyF	R	** –7.16	Ford	F6IHV	825	1231	C	TX	82	9½x3x½	TL▼
51	(C) C4X28....4R	151	217	28000	7500▲	7.50/20	8.25/20*	Chev.	6–3 x3½	235	6.6	192	93–3100	4–St. Chev.	Y	Chev. ⊟⊟	8	Chev.	HyF	R	** –6.17	Chev.	C6IHV	506	780	Co	2I	68	9½x3x½	C▼
52	(C) C4X29 (coe)4R	125	192	29000	7865▲	7.50/20	8.25/20*	Chev.	6–3 x3½	235	6.6	192	93–3100	4–St. Chev.	Y	Chev. ⊟⊟	8	Chev.	HyF	R	** –6.17	Chev.	C6IHV	506	780	Co	2I	69	9½x3x½	C▼
53	.....C4X29	151	217	29000	8040▲	7.50/20	9.00/20-10	Chev.	6–3 x3½	235	6.6	192	93–3100	4–St. Chev	Y	Chev.♦♦	12	Chev.	HyF	R	** –6.17	Chev.	C6IHV	506	780	Co	2I	68	9½x3x½	C▼
54	.....C4X30	125	192	30000	8400▲	7.50/20	9.00/20-10	Chev.	6–3 x3½	235	6.6	192	93–3100	4–St. Chev	Y	Chev.♦♦	12	Chev.	HyF	R	** –6.17	Chev.	C6IHV	506	780	Co	2I	69	9½x3x½	C▼
55	Ward La Fr. DIT‡	180	220	39500	.....	10.00/20	11.00/20	Con T6427	6–4 x4¼	427	...	340	152–2600	.....		Fu 5A43♦♦	15	Tim SD3010P	2F	L	** –8.27	Tim 35017TW	T4IA	.....	.....	D	.....	.....	10x3½x☆	C
56	.....D2KT▲▲	180	220	39500	.....	10.00/20	11.00/20	Wau 140GK	6–4½x5½	525	...	425	168–2400	.....		Fu 5C65♦♦	15	Tim 8D3010P	2F	L	** –7.50	Tim 35017TW	T4IA	.....	.....	D	.....	.....	10x3½x☆	C
57	.....D2ZT▲▲	180	220	39500	.....	10.00/20	11.00/20	Wau 140GZ	6–4⅝x5½	554	...	458	184–2400	.....		Fu 5C65♦♦	15	Tim 8D3010P	2F	L	** –7.50	Tim 35017TW	T4IA	.....	.....	D	.....	.....	10x3½x☆	C
58	.....D3T▲▲	180	220	39500	.....	10.00/20	11.00/20	Con R6572	6–4¾x5¾	572	...	440	198–2600	.....		Fu 5C65♦♦	15	Tim 8D3010P	2F	L	** –7.50	Tim 35017TW	T4IA	.....	.....	D	.....	.....	10x3½x☆	C
59	.....D38T▲▲	180	220	39500	.....	10.00/20	11.00/20	Con R6602	6–4⅝x5⅜	602	...	467	206–2600	.....		Fu 5C65♦♦	15	Tim 8D3010P	2F	L	** –7.50	Tim 35017TW	T4IA	.....	.....	D	.....	.....	10x3½x☆	C
60	(D).....D5T▲▲	180	220	42000	.....	11.00/20	11.00/20	Cum HB600	6–4⅞x6	672	...	500	150–1800	.....		Fu 5C72♦♦	15	Tim 8D3010P	2F	L	** –6.84	Tim FE900	T4IA	.....	.....	D	.....	.....	10x3½x☆	C
61	(D).....D5RT▲▲	180	220	42000	.....	11.00/20	11.00/20	Cum HRB600	6–5½x6	743	...	540	165–1800	.....		Fu 5C72♦♦	15	Tim 8D3010P	2F	L	** –6.84	Tim FE900	T4IA	.....	.....	D	.....	.....	10x3½x☆	C
62	(D).....D5NT▲▲	180	220	42000	.....	11.00/20	11.00/20	Cum NHB600	6–5½x6	743	...	540	200–2100	.....		Fu 5C72♦♦	15	T SW3012PA	WF	L	** –6.17	Tim FE900	T4I◁	.....	.....	D	.....	.....	10x3½x☆	C

▲ Includes Cab.
♦ Front only; Rear 8.25/20.
‡ Rear only; Front 11.00/24.
†—Available with optional rear axles.
▲▲—Available with 11.00/22 or 12.00/20 tires for G.V.W. of 60,000 lbs. and optional front and rear axles.
♦ Auxiliary transmission, Spicer 8031.
■ Two speed axle with vacuum shift.
△ Rear only; Front 12.00/24.
♦♦—Auxiliary transmissions Fuller 3A65, 3B65, 3A92 and 3B92.
† Front only; Rear 9.00/20.
†‡ Front only; Rear 10.00/20.
⊟⊟ With Baumis auxiliary transmission.
●—When 11.00/22 tires are required it is necessary to furnish 52 inch axle spacing.
°° Hydraulic coupling.
▽ Two speed axle available—6.13–8.10.
▼ Including slip-over reinforcing frame channels.
♦♦ With Baumis power divider.
□ Chassis weights on duals front, center and rear.
° Composite Cast Alloy Iron.
§ Cast Alloy Iron.
* Single front dual rear.

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in Nation-Wide Survey!

"What features would you include in a motor truck if you were to build it yourself?" Prominent truck operators from coast to coast were asked this question through an independently conducted national survey. Thousands responded. Feature for feature . . . the all-new Federal *Style LINER* Trucks came closest to meeting their specification requirements. That's what makes the new Federal *Style LINER*—with exclusive features never before offered by the truck industry—such an outstanding value in top flight payload performance. It will pay you to see your Federal dealer for a demonstration.

FEDERAL MOTOR TRUCK COMPANY, DETROIT 9, MICHIGAN, U. S. A.

- **30% GREATER STRENGTH**—sturdier built chassis plus a stronger, bigger frame adds important strength to the *Style LINER*.
- **60% GREATER VISIBILITY**—one piece bent plate glass windshield without center bar assures full, unobstructed vision.
- **100% GREATER ACCESSIBILITY**—exclusive "Swing-Lift" fenders, make engine, steering, brakes and accessories easier than ever before to get at.
- **ROOMIER CABS**—built for extra comfort. Deep cushioned, wider seats, fully adjustable, will easily accommodate 3 big men.
- **RADIUS ROD DRIVE** (on most models) saves wear and tear on axles and springs.
- **ALL-WEATHER AIR CONDITIONING**—fresh air heater and defroster thermostatically controlled for all-weather driving comfort available.

FEDERAL TRUCKS

THE FEDERAL FRANCHISE MAY BE AVAILABLE FOR YOUR TERRITORY. DETAILS UPON REQUEST.

. . . CLIFFORD W. ROY, as sales representative for Gumout for Penrsylvania Refining Co., Cleveland, Ohio.

. . . JACK R. CEDARBLADE, as assistant director of the Industrial Relations Department of American Trucking Associations.

. . . CHARLES F. NIELSEN, director of Parts and Service, Lockheed Aircraft Corp., Burbank, Cal., elected to president of the National Defense Transportation Association.

. . . L. E. "TED" CRAIG elected to vice president and general manager of sales, Highway Trailer Company.

. . . WILLIAM T. KELLEY, JR., appointed president of the American Brakeblok Division of the American Brake Shoe Co.

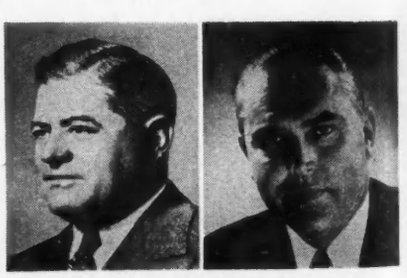
. . . R. L. MCCAFFREY, appointed manager of International Harvester Co.'s newly established motor truck district sales office in Des Moines, Iowa.

. . . HOWARD L. REINKE, as district manager of the Twin Cities territory including Minnesota, Wisconsin and parts of North and South Dakota, for Toledo Steel Products Co.

. . . A. L. STRUBLE, as general sales manager of Reo Motors, Inc., Lansing, Mich.

. . . J. C. WRIGHT named district manager supervising White Motor Co. truck sales in the Brooklyn, Bronx and Long Island City branches of White and in Nassau, Suffolk and Westchester counties.

. . . A. RAY CARR, manager, Kraft Service and Accessory Sales at The General Tire and Rubber Co.



. . . K. T. KELLER, Left, President of Chrysler Corp. since 1935, was elevated to chairman of the Board. LESTER L. COLBERT, Right, who has been president of the Dodge Division was elected President of the corporation.

. . . HOWARD P. GRAVE, as general manager of the New York zone of Willys-Overland Motors, Inc.

. . . PAUL F. AKERS, transferred from the Toledo sales office of The Auto-Lite Battery Corp. to the post of district sales representative with headquarters in St. Louis.

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WHERE samples are taken from stock of every new item developed and put to a series of rigorous tests.

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LOCK HANDLES · DOOR HOLDERS
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LOCKS
REFRIGERATOR · VAN BODY
PANEL DOOR · SLIDING DOOR
ROPE HOOKS · LADDER
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Division of the Eastern Malleable Iron Co. EVARTS AVENUE CLEVELAND, OHIO

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AGENTS IN 288 PRINCIPAL OKLAHOMA CITIES AND TOWNS

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MAIN OFFICES 10 N W 8TH ST OKLAHOMA CITY

OKLAHOMA CITY, OKLAHOMA

October 14, 1949

Wagner Electric Corporation
6400 Plymouth Avenue
St. Louis 14, Missouri

Gentlemen:

We have just been notified by the American Trucking Association that our firm has been awarded first place in the 3,000,000 to 5,000,000 mile annual safety contest. This is the third consecutive year our firm has been honored with this award.

In recognizing all helpful factors that enabled us to achieve these records, we would again like to express our appreciation for the helpfulness of the TACHOGRAPH, which we use as a safety control on each of our road units.

Our operation is unique in motor transportation. We perform as a motor express carrier covering virtually the entire state of Oklahoma, transporting principally rush and perishable merchandise, including daily newspapers. Our schedules must be held at a variance of only a few minutes It is necessary in order to maintain these schedules, that we travel at the maximum speed permitted by law and yet so conduct our driving to conform to all of the rules of good safety.

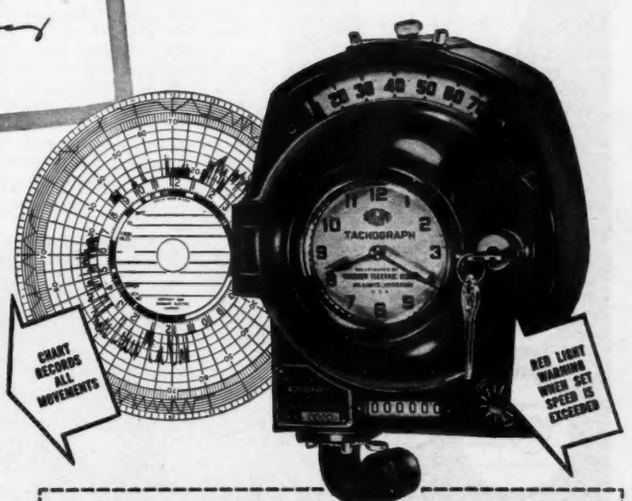
We have never used governors on our equipment, but have depended entirely upon an examination of the TACHOGRAPH cards at the completion of each run to determine the maximum speed which the driver is attaining, as well as the evenness with which he drives under the condition we know will normally exist over his run.

It would be impossible in an operation such as ours, to maintain "on-the-minute schedules" did we not have an accurate day to day check of the driving time between towns, as well as the loading, unloading and transfer time required at each stop around the route. We have found the TACHOGRAPH to be the only satisfactory answer to control this part of our operation.

Yours very truly,
MISTLETOE EXPRESS SERVICE
Clyde Reeves
Manager

CR:hh

Like Mistletoe Express, winner of the A. T. A. Award for the third consecutive time, many cost-conscious fleet operators have learned to depend upon Tachographs to help maintain fast, safe schedules. Wherever installed, these recording speedometers have proved themselves not only an aid in economizing over-the-road trucking operations but as a protector of drivers. They encourage good driving practice, and the charts record all movement of the vehicle as well as the speed at which it travels, protecting drivers from false speeding charges. Mail coupon below for complete information.



- WHEN ENGINE STARTED
- HOW FAST IT TRAVELED
- HOW LONG ENGINE IDLED
- WHEN VEHICLE STOPPED
- WHEN VEHICLE STARTED TO MOVE
- DISTANCE TRAVELED BETWEEN STOPS

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SU-3B

Performance vs Present Day Fuels

Continued from Page 55

octane number. Not much octane number money can be saved by offering a special fuel. In other properties, the commercial engine fuel taste is edging closer and closer to that of passenger cars. The light-duty designs are almost a match for passenger car engines and even heavy duty automotive engines now approach passenger car sensitivity to volatility, mileage, power, starting and combustion cleanliness. Refinery considerations dictate many properties alike for passenger car and commercial fuels. Prior to World War II, some unleaded gasoline was offered for fleet consumption. Today some preference is occasionally expressed for clear gasolines, but refinery costs at today's quality level would make the price prohibitive to the automotive trade. Refinery economics are now very much in favor of tetraethyl lead usage to the point where clear fuels of adequate octane number are almost non-existent automotively. The economics also favor higher lead content, especially in view of the 100 per cent increase in rate of gasoline quality improvement made in the U. S. in the last two years. Regular grades average just over 2.0 cc per gal and premiums 2.4 cc per gal, according to the latest Ethyl Corp. surveys. Unusual octane demands elevate tetraethyl lead content.

Operators sometimes question the inside-engine effects of lead. Some trace of lead compounds does remain in the engine. It may color the lubricating oil gray, but with no harmful effect. It is present in combustion chamber and valve deposits. A better job of lead scavenging can be done and new developments are being pressed by tetraethyl lead suppliers. Actually, we hear of very little trouble associated with this feature of gasoline. Field tests support more and more the contention that engine deposit effects as measured by knocking tendency are about the same for clear and leaded gasolines. Designers and operators alike have recognized this fact and are getting excellent results with good regular grades.

Interest is also evidenced in straight run versus cracked. Again refinery considerations prevail. The heavier fuel oil fractions must be more and more intensively cracked to gain the necessary gasoline volume and quality, with the result that regular grade contains more cracked and less straight run components in the blend. This is no cause for concern, since cracked components are good commercial fuels, providing the stability characteristics have been protected. Further protection is offered in that catalytically cracked stocks can be made quite stable and clean burning.

How to Get Best Performance

THE greatest obstacle to effective utilization of available octane numbers is, of course, the terrific variation in quality requirements of individual vehicles. The first corrective move is proper adjustment of spark timing. When the vehicles of Fig. 1 were brought to standard spark timing, a definite improvement was evident as seen in the octane requirements "as adjusted." One vehicle shows a drop in requirement from 92 down to 74 octane number through spark adjustment alone. While engines vary in their sensitivity to spark timing, it is helpful to look at a typical spark-timing versus octane requirement curve shown in Fig. 3. Basic timing is only a part of the story. The influence extends fully along the speed curve and the distribu-

(TURN TO PAGE 100, PLEASE)

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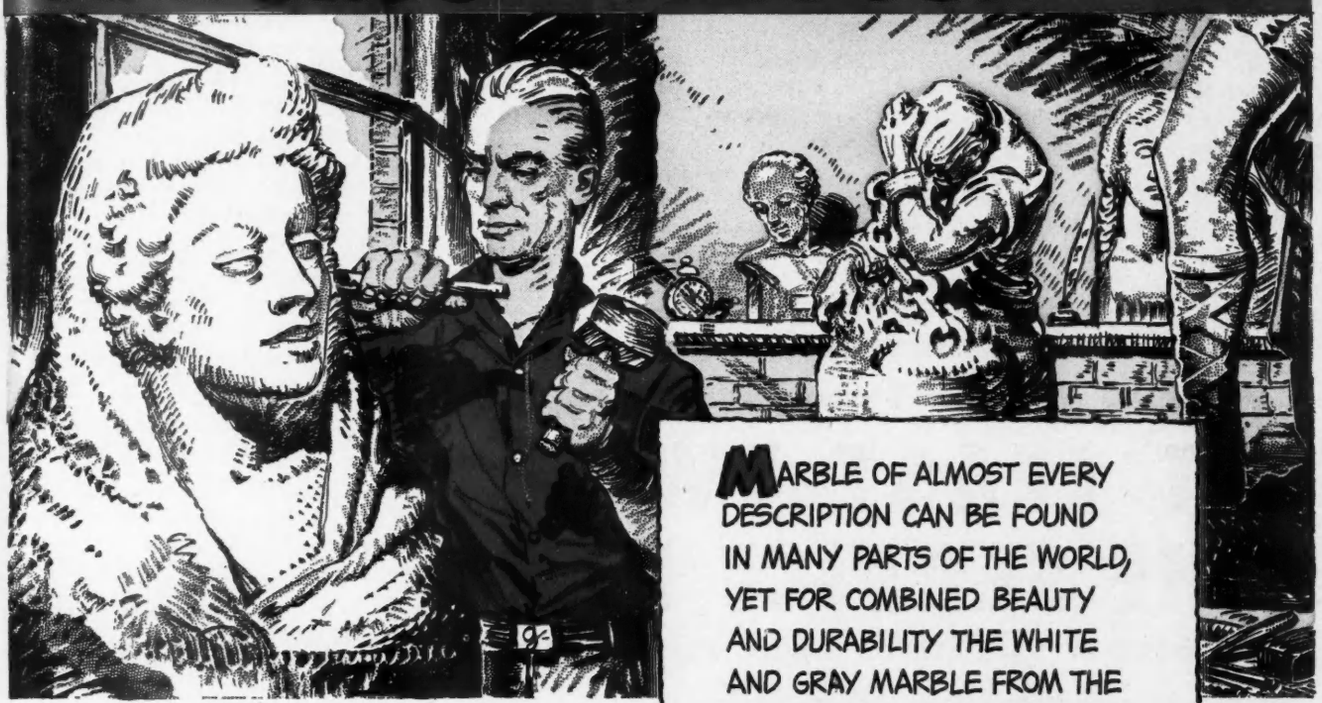

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Performance vs Fuels

Continued from Page 98

tor advance must be checked and controlled to the proper setting.

Experience will show which vehicles in the fleet are sensitive to gasoline quality. Perhaps 10-15 per cent are the troublemakers; concentrate on these units at first. Many corrective measures will increase performance and better economy, in addition to suppressing knock. A few engines will probably need spark timing retarded from standard and temperatures set cooler than the general run of the fleet, perhaps even to the point of a slight performance loss. It is better, however, to take a little performance penalty with these few vehicles than to saddle the whole fleet with a higher cost fuel than is necessary. Do not set back all engines in a fleet to the same compromise settings necessary for the few critical units.

A few worthwhile considerations are mentioned by way of example in checking the critical vehicles:

Ignition

EACH degree over-advance increases quality requirement approximately 1 octane number.

Distributors leave the factory with a normal production tolerance of ±2 degrees, equivalent to 4 octane numbers variation. Production tolerance should be reduced to ±1 degree.

Sticking vacuum control, improper advance with speed, and advanced basic timing can affect knock equivalent by 5-15 octane numbers.

Spark is often advanced on one or two cylinders only. Bent shafts, poor distributor cam lobe grinding, cocked distributor plates, wear and the like may raise the octane requirement of individual cylinders 5-10 octane numbers above the others.

Pre-Ignition

ARTIFICIALLY early ignition due to hot spots cannot be corrected with gasoline quality adjustment. Deposits, local hot spots, hot plugs, and excessive projections of any nature into the combustion chamber must be remedied. Testing for pre-ignition with the "ignition switch off" technique may be useful in proving this source of knock. It involves normal full throttle acceleration or hill climbing to induce hard knock and then cut-off of the ignition switch while leaving the throttle wide open. Continued firing is evidence of pre-ignition. Very often trouble starts with the usual knock or detonation which, under the effect of hot spots, swings over the pre-ignition. This condition is definitely harmful. More design and operation attention are required here.

Temperature

HIGHER temperatures almost invariably increase knock. In passenger cars, 10 deg F increase in coolant temperature is equivalent to 1 octane number higher requirement. Hot inlet air, poor valve cooling, excessive manifold heat, clogged water jackets are typical sources of knock trouble. R. J. S. Pigott reports an example of benefit from extra cooling attention in a supercharged engine where a racing engine of 13.5:1 compression ratio operated without knock on an 82 ASTM Motor Method and 82 Research Method gasoline (approximately equivalent to a good regular grade). Drop in temperature alone had the same effect as a reduction from 13.5:1 to 8:1 compression ratio. High speed and other provisions contributed the rest.

While correction of low temperatures generally reduces friction and improves efficiency, excessive temperature cuts

(TURN TO PAGE 103, PLEASE)

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In competitive vibrating-machine tests (the most rigorous of such tests known) a Pyrene Vehicle Type Extinguisher outlasted three other major brands by more than 2 to 1 . . . the ratio going as high as 15 to 1. (Chart shows details.) And there is not one single known instance of the Pyrene heavy-duty mechanism wearing out in actual operation.

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Performance vs Fuels

Continued from Page 100

power. Maintenance of proper temperature summer and winter is necessary.

Deposits

DEPOSIT accumulation in passenger cars and light-duty commercial operations may add 5-15 octane numbers to the quality requirement. A few full-throttle uphill climbs and a high-speed run often clear away deposits. For this reason, heavy-duty trucking operations may show fewer knock effects related to deposits. Where troubled with deposits, the recently announced method for the mechanical removal of carbon, perfected by an important car manufacturer, might be investigated for its applicability to commercial engines. With this method, a hard grade of rice is air-blown into the cylinder through the spark-plug hole; no engine dismantling is necessary.

Knock Intensity

LIGHT knock is not harmful. Even occasional hard knock is relatively harmless, but heavy knock for long periods elevates piston temperature and may crack pistons.

Compression Ratio

NO TWO cylinders have exactly the same compression ratio. A reasonable manufacturing tolerance is necessary, but engines have been found in extreme cases with one cylinder a full compression ratio high. Perhaps full machining of the cylinder head is indicated for uniformity of compression and reduced deposit adherence. This practice has already been adopted for some high-compression engines.

Carburetion

LEAN mixtures promote knock. Leanest acceptable setting is governed largely by the leanest cylinder which often is one or two air-fuel ratios leaner than others. Every possible disturbing influence on air-fuel mixing and manifolding should be corrected. Worn carburetor parts, poor gasket fits, manifold deposits, valve behavior, and engine production variations all tend to establish lean cylinders which individually promote unnecessary knock.

The Non-Critical Engines

THE opportunity is open to certain manufacturers whose engines exhibit lower knocking tendency to gain additional power and economy. This possibility is of primary interest to the designer, but might also be of interest to the operator where fleets are made up predominantly of makes which show the lower octane requirement. Where fleets are made up of a variety in age and make, special attention to the non-critical units may be more difficult.

Spark timing brought to standard is the first step, of course. Some engines will show a slight power and economy gain when advanced several degrees beyond standard timing. The performance gain can come about only as a result of having the timing properly adjusted for the full speed range and power range as controlled by the manifold vacuum. The basic timing is only of interest during idle, and idling conditions are of no performance interest.

Engines with very low octane requirement are sometimes those with rich mixture settings. Return to normal lean adjustment obviously improves economy. Engines which are not limited by knock might be run at slightly higher coolant temperatures, thus reducing friction and improving both power and economy.

There are some conditions under which it might be advisable to have

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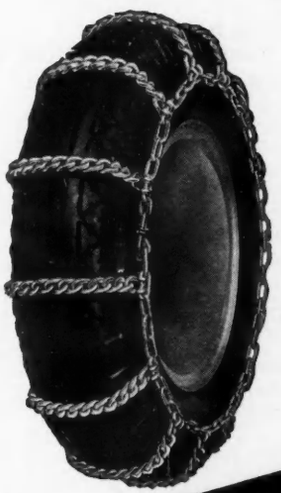

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Full-length water jacketing, assuring water circulation completely around all cylinders, prevents distortion and makes for long service-free life.

Continental Motors' patented system of individual porting, assuring uniform distribution of fuel mixture to all cylinders, promoting complete volitilization and burning of "heavy ends" of fuel, eliminating "loading," improving thermal efficiency, and making directional influences of carburetor and air cleaner much less critical.

Water by-pass system and leakproof water pump.

Alloy-steel exhaust valve seat inserts for long trouble-free life.

Non-rusting Silchrome intake valves.

Counterbalanced alloy steel crankshaft with vibration damper; Tocco-hardened journals.

Non-corroding Durex-100 main and connecting rod bearings.

Pressure lubrication with positive-displacement oil pump; Float-O screen assures supply of cleanest oil at all times.

Built-in oil cooler and oil-filter.

Helical-teeth timing gears for silence and long life.

Tappets, bearings and crank seals removable without removing engine or transmission.

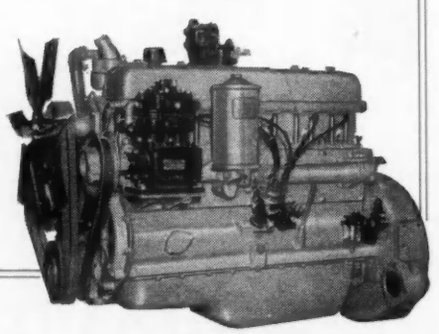
Fuel pump located on engine's cooler side, to eliminate vapor lock.

Expansion-valve type exhaust manifold.

Multi-studded cylinder head for long gasket life and freedom from head distortion.

Three-point suspension.

MODEL T-6427 *Six cylinder, overhead valve engine for trucks and buses. 126 to 145 h.p. at 2600 r.p.m.*



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Performance vs Fuels

Continued from Page 103

available cylinder head gaskets of several thicknesses or alternate compression ratio heads from which a selection could be made. Fleet operators may consider such alternatives dangerous, in which case the manufacturer of the vehicle might consider further use of kits for altering the compression ratio, with proper instructions on the nature and amount of modification which individual engine models will tolerate. Assuming that truck and bus engines have a normal 10-year service life, and that during this 10 years gasoline quality would advance appreciably, the manufacturer might design the engine originally with the idea that at least once during that 10 years, the engine could be stepped up in performance in line with improved gasolines.

Of all modifications, higher compression ratio is probably most effective. It must be remembered that engine stresses are elevated rapidly with an increase in compression ratio, and the engine builders should be consulted for assurance that the design and mechanical condition will tolerate the higher stresses.

Some allowance should be provided for an engine to fluctuate in its quality requirement. No engine has a fixed requirement, and more or less permanent steps like adjustment of compression ratio should not bring the vehicle right up to the limit of gasoline quality. Accumulation of deposits after 5000 miles may elevate the octane requirement 5-10 octane numbers as contrasted with a new or overhauled condition. Only experience will show how much to allow for deposits, since the effect differs with design.

The influence of atmospheric conditions must be considered also:

Altitude: Increase of altitude by 1000 ft decreases octane requirement by 1-3 octane numbers.

Barometer: Normal barometric pressure swings over the year are equivalent to 1-3 octane numbers.

Humidity: Drop in humidity from 90 to 20 per cent at 70 deg F is equivalent to a decrease of 4 octane numbers.

Air Temperature: Reliable data on this effect are lacking, but 2 octane numbers increase in requirement from winter to summer temperatures is often quoted.

Mileage and Power

THE approach to better mileage and power with any gasoline is not effective by trying to build up its energy content. Heavier gasoline has often

(TURN TO PAGE 106, PLEASE)

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Typical of the outstanding *buys* at Fruehauf Branches today is this 12-ft. all steel, straight-frame body. Now yours complete—mounted on chassis, painted to match cab—ALL FOR ONLY $622 (taxes extra).

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FRUEHAUF *Truck Bodies*

READY FOR THE ROAD IN A MATTER OF HOURS

Performance vs Fuels

Continued from Page 104

been considered for fleet operations. It improves mileage and potential power only 1 per cent for each 3 deg decrease in API gravity (increase in density). Furthermore, the high octane number of heavy catalytic fractions has already built up the heavy ends in regular grade, leaving modest room for further development in this direction. About 2 per cent mileage and power variation is the range for available gasolines. Real improvements come from proper engine condition mechanically, adequate matching of the engine to the gasoline, and driving technique. (The 1950 Grand Canyon Economy Run demonstrated what can be done by a combination of factory standard automobiles, careful tuning, and good driving, with present day gasolines. A cross-section of 1950 American makes averaged 22-1 m per gal at an average speed of 40-42 m per hr over a 750-m run. A.A.A. sponsorship guaranteed factory standard equipment and a practical test.) Additional mileage and power gains can be realized through compression ratio increases and new designs which capitalize on high gasoline octane number, balanced volatility, and combustion cleanliness, fuel features improved yearly by the oil industry.

Gasoline Trends

SURVEYS run by the Bureau of Mines, Ethyl Corp., Du Pont and major oil companies are available to the trade to show the general gasoline quality trends throughout the country. Average antiknock improvement in the past has been about 1 octane number per year. In the last two years, quality improvements have accelerated beyond this rate, reaching an average of approximately 2 octane numbers per year.

The war emergency will now doubtless halt the trend, possibly reverse it temporarily. The oil companies made it no secret that World War II refinery expansion for aviation would be put to work for civilian gasolines. Now, the military demands for high-octane aviation fuel have diverted the very highest octane number stocks from motor gasoline and the effect on quality is increased with the number of piston-engine aircraft involved. Jet and turbine propelled aircraft consume low octane fuels and therefore do not have the adverse effect on motor gasoline. When conditions return to normal, it is reasonable to expect passenger car designs to require still better regular and premium grades. Under these conditions, the fleet operator is in a quite favorable position using regular grade. Its high quality and efficient distribution (attributable to large volume) make it hard to beat.

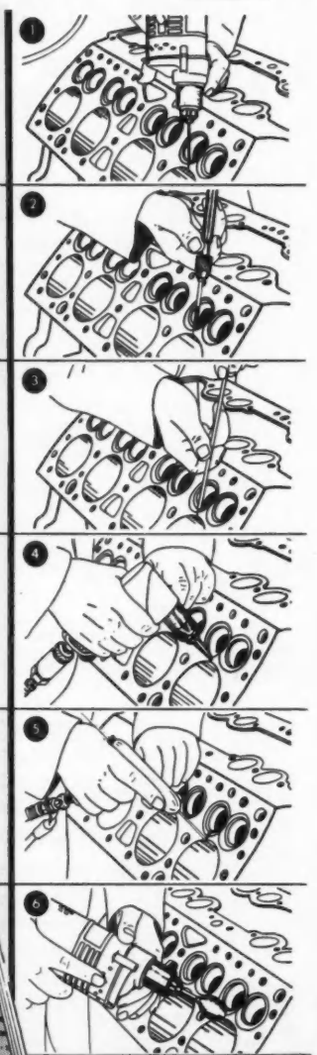
Low octane, third-grade gasolines have cropped up in a few spots for service station sales in the last year. Most industry marketers think they will have a short life and disappear. While such fuels were of commercial fleet interest in the thirties, it is now more difficult to see their usefulness in the face of high octane requirement trucks and buses.

END

Please resume your reading on P. 56

How should you repair a cracked valve seat?*

You'll find the answer in the new Tincher CRACK REPAIR Manual! For this helpful new manual describes the latest and most effective ways to make this and other crack repairs. Its text is clear and easy to follow, and each job is illustrated with step-by-step drawings like those shown here in reduced size. There is complete coverage of such subjects as "Types of Cracks and Their Causes" . . . "Methods of Repairing" . . . and "How to Analyze The Problem." And full details on the unusual time-saving and profit-making possibilities of the Tincher Electro-Mechanical Process.



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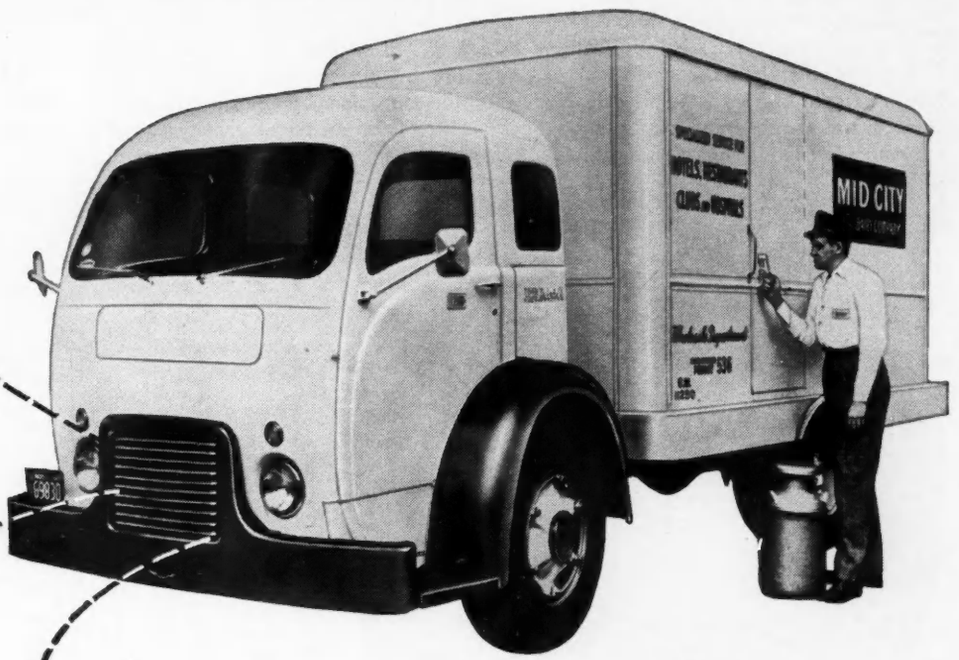

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In designing their "3014" series trucks for maximum on-the-job usefulness and low delivery costs, *White* engineers adopted *Long* radiators.

Since 1903, *Long* radiators have supplied leading car, truck, bus and tractor manufacturers with *balanced systems* for engine cooling requirements.

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Brake and Traction Tests

Continued from Page 57

time the brakes were applied until the velocity of the vehicle approached zero. Figs. 5 and 6.

The following conclusions are based on travel on an ice tangent or curve:

★ When the rear wheels were caused to break traction (spin) by application of more torque than the coefficient of friction would support, the vehicle became unstable and eventually went out of control. This condition was aggravated by a high power to weight ratio.

★ When the front wheels were caused to break traction, the vehicle traveled a path which coincided with its longitudinal centerline.

★ When all four wheels were caused to break traction, the vehicle traveled in the direction of the instantaneous motion of the center of gravity.

★ Although the initial forces are opposite in direction, the ultimate reaction of a vehicle is the same whether brakes or excess torque are applied to the wheels on a given axle.

In addition to the above, the following conclusions were drawn relative to vehicle control on an ice curve after the vehicle has begun to skid because of excessive speed:

★ With each of the three types of drive, the front, rear, or both axles may skid. With front, rear and four wheel drive, if the front axle skids first, to regain traction it is necessary to reduce the vehicle speed.

★ With front and four wheel drives if the rear axle skids first, it is possible to prevent the vehicle from entering a flat spin by application of excess power to the front wheels. This causes the entire vehicle to move sideways which allows recovery as soon as the rear wheels begin to roll.

★ With rear wheel drive if the rear wheels skid first and the skid goes so far that steering is no longer effective, then the driver has no means of preventing the vehicle from continuing into a flat spin.

★ Power delivered through the steering wheels prevents loss of steering control by preventing locking of the front wheels during a braking operation.

★ Because of the preceding fact it is possible to stop in less distance on a curve with a live front axle than with a dead front axle.

★ The braking distance on the curve with four wheels driving and four wheel brakes averaged 9 per cent less than with rear wheel drive and four wheel brakes.

Traction

DRAWBAR pull tests on lake ice revealed the following comparative information on the types of drive:

★ The greatest difference in drawbar pull on ice between a four wheel drive and a rear wheel drive was shown at no load where the load distribution to front and rear axles is nearly equal. The four wheel drive truck with the center differential unlocked was able to exert as much as 82 per cent more drawbar pull than the rear wheel drive.

★ With a 24-76 load distribution (24 per cent to the front axle and 76 per cent to the rear axle) on the rear wheel drive truck and a 39-61 load distribution on the four wheel drive truck (CDU) (center differential unlocked), the drawbar pull of each truck on ice for coefficients of friction below 0.1 was very nearly equal; above this value the rear wheel drive exceeded the four wheel drive in draw-

(TURN TO PAGE 110, PLEASE)

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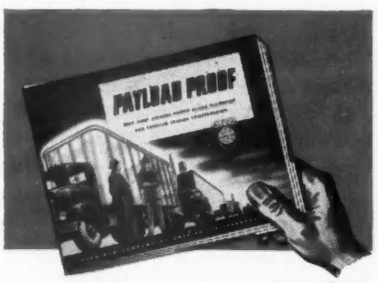

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Weigh one of 'em. It's 2710 lbs. *lighter* than Dohrn's steel van. Measure it. It's 50 in. *longer!* That means more tonnage capacity for heavy cargoes—more space for light, bulky cargoes. More payload any way you figure it.

Besides earning more, aluminum trailers cost less to maintain, reports Mr. Lloyd R. Larson, Dohrn Sales Manager. "Repairs are cheaper and take less time," he says. "Our aluminum trailers have practically eliminated costly tie-ups for painting!"

No wonder Dohrn buys aluminum trailers exclusively—30 more since last May. Extra payload is the payoff! Get the facts and figures on aluminum construction from your trailer builder.

ALCOA

First in Aluminum

THE METAL THAT LASTS

Brake & Traction Tests

Continued from Page 108

bar pull for these load distributions.

★ With a 32-68 load distribution, which is in accord with the recent trend in the rear wheel drive industry, and a 39-61 load distribution on the four wheel drive truck (CDU 50-50 torque distribution), the drawbar pull of the four wheel drive truck was 15 per cent more at a coefficient of friction of 0.26.

★ Using a truck having a GVW of 20,925 lb and load distribution of 39-61 as a four wheel drive with the center differential unlocked, the static drawbar pull was 2100 lb; as a four wheel drive center differential locked, 2600 lb; as a rear wheel drive, 1870 lb; and as a front wheel drive, 1180 lb.

Because there is reasonable agreement in most cases between the values of the coefficients of friction for each of the types of drive, it is possible then to compare the drawbar pull of any vehicle under any load if the coefficient of friction and the load on the driving wheels are known. The following conclusions are based on this information and have been verified by tests:

★ The optimum drawbar pull with any truck is obtained with all wheels driving and the torque distribution to the front and rear axle equal to the instantaneous load distribution.

★ The drawbar pull of a four wheel drive truck with a center differential locked lies between the upper limit set by conditions in the preceding paragraph and the lower limit set with center differential unlocked. If the wheels are spun, however, the maximum drawbar pull is obtained with the center differential locked, because as soon as this occurs the torque distribution automatically becomes equal to the load distribution.

★ By proper selection of the torque distribution to the front and rear axles relative to the load distribution, it is possible to obtain drawbar performance which approaches the theoretical maximum.

★ With the same load distributed in the same way (33-67), the four wheel drive truck has a practical potential drawbar pull equal to 1.4 times that of the rear drive truck and 3.3 times that of a front wheel drive truck.

★ With a 33-67 torque distribution it is calculated that the gradability of the four wheel drive straight truck will exceed that of the rear wheel drive straight truck, each with a 33-67 load distribution, by 40 per cent or more below a coefficient of friction of 0.1. This advantage decreases to 16 per cent at a coefficient of 0.25.

★ With a 33-67 torque distribution it is calculated that the gradability of the four wheel drive tractor and semitrailer will exceed that of a rear drive unit, each with the recommended fifth wheel location and the same GVW by 28 per cent or more below a coefficient of friction of 0.1. This advantage decreases to 9 per cent at a coefficient of 0.25.

★ Although it can be shown that the advantage of the four wheel drive truck above a coefficient of 0.1 can be increased by arranging the static load distribution to the front wheels so that it exceeds the torque distribution by approximately 7 per cent, this type of vehicle has not yet been tested for stability.

Summarizing with regard to the three types of drive, although the behavior of front wheel drive is good on the straightaway, it is undesirable on a curve. The traction provided by front wheel drive is a minimum for load distributions normally encountered in trucks. The rear wheel drive, while superior to front wheel drive in traction,

(TURN TO PAGE 112, PLEASE)

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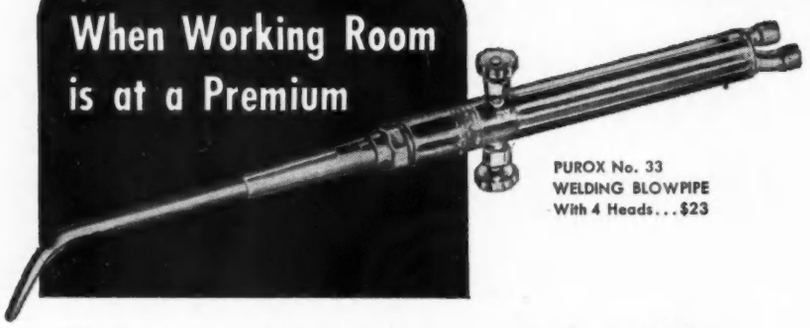

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Brake and Traction Tests

Continued from Page 110

is apt to go into a flat spin when excess torque is applied to the driving wheels either on a straightaway or curve. The four wheel drive vehicle with the torque and load distribution properly equalized provides the maximum traction, which in itself makes for a safer vehicle because the likelihood of the wheels losing traction is reduced. Further, this type of drive is not only capable of holding its course on the straightaway, but also the vehicle moves sideways on a curve if the wheels lose traction. This is a definite advantage in regaining control. From the above conclusions and observations it follows that of the three types of drive, the four wheel drive offers a maximum of safety on a surface having a relatively low coefficient of friction by providing a maximum of stability and traction.

The drawbar pull tests gave the following fundamental information which applies to safety in the operation of a motor vehicle on ice:

★ The drawbar pull available below 32 deg F with the drive wheels spinning was as little as 10 per cent of that under static conditions.

★ The dynamic coefficient of friction or that obtained with the vehicle in motion was 50 to 90 per cent of the static coefficient.

★ The static coefficient ranged from 0.10 to 0.41; the spinning coefficient ranged from 0.02 to 0.09. The dynamic coefficient varied from 0.13 to 0.30; however, the latter value was not measured under the most adverse conditions.

★ As expected, the above conclusions show that maximum traction on ice was achieved only when the wheels were not spinning.

★ The static coefficient on ice where free water was present approached the value of the spinning coefficient. This emphasizes the need for extreme caution on wet ice.

★ With the driving wheels equipped with premium chains traction was greatly improved. Compared with bare tires, the values of the static coefficient increased as much as 100 per cent, and, more significantly, the spinning and dynamic values approached the value of the static coefficient.

END

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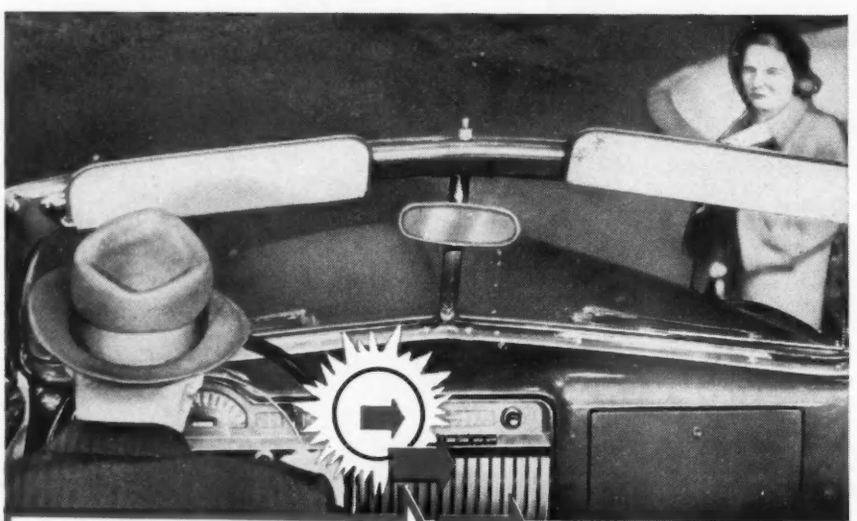

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means greater safety on the highway

Illuminated direction signals for motor vehicles are fast approaching the "standard equipment" classification of safety glass and sealed beam headlights. As the use of lights for this and other signaling purposes becomes universal, TUNG-SOL Flashers assume greater importance as part of any automotive system.

TUNG-SOL Flashers start instantly and provide the commanding blinking action for the signal—plus the important safety pilot light on the instrument panel. This pilot light when properly installed provides positive indication for the driver that the system is working properly.

Though it normally lasts for the life of the vehicle, the TUNG-SOL Flasher requires no maintenance and consumes little current. Since 1939, nearly 10,000,000 have been bought. The TUNG-SOL Flasher is now standard or optional equipment on virtually every American made automobile. *Write for more information about TUNG-SOL Flashers.* TUNG-SOL LAMP WORKS INC., Newark 4, N. J. *Sales Offices:* Atlanta, Chicago, Dallas, Denver, Detroit, Los Angeles, Newark, Philadelphia.

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Penna. Turnpike Opens

The new 100-mile Philadelphia Extension of the Pennsylvania Turnpike System was opened on November 20. This links Carlisle and King of Prussia (near Philadelphia), and provides 260 miles of fast, safe and uninterrupted travel to a point just east of Pittsburgh. There are no stop lights, stop signs or cross traffic no grades exceeding 6 per cent or curves more than 3 degrees with minimum sight distance of 1000 ft. There are 18 interchanges, and 17 service stations operated by the Esso Standard Oil Co. and the Gulf Oil Corp. on the new section.

The Philadelphia Extension, completed in twenty-five months at a cost to the Turnpike Commission of approximately $87,000,000, is much the same as the present Turnpike. The 24-ft. eastbound and 24-ft. westbound lanes of 9 in. of concrete containing air-entrained cement are separated by a 10-ft. medial strip.

Among the many safety features on the new 100-mile stretch are the newly-designed delineators or reflectors that "light" the entire stretch of the Turnpike for night drivers. These reflectors are about the size of a man's hand, made entirely of aluminum and surfaced with silver "Scotchlite" material. Mounted on standards, they are placed along the shoulder at uniform distance from the pavement's edge and also down the center of the medial strip.

The Turnpike System is equipped with radio communication system and cruising patrol vehicles. Full-length fare for passenger cars for the 260-mile distance is $2.50.

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COMBINED WITH DELCO-REMY DISTRIBUTORS

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IMPROVED SPEED REGULATION: The new Holley Centrivac Governor is operated by a vacuum powered diaphragm which is controlled by a centrifugal air valve mounted on side of distributor. This insures more even flow of power—a higher economy factor—improved engine performance.

FASTER ACCELERATION—NO SURGING: The Holley Governor design permits the engine to accelerate normally, since the governor throttle remains *wide open* up to the desired speed control. This feature eliminates engine surging with definite improvement of truck operation—less wear and tear on drivers' nerves.

REDUCES POWER LOSS: The Holley Governor cannot choke the engine when pulling heavy loads up hills because the throttle remains wide open until the speed control point is reached. This reduces power loss, improves operating efficiency.

ECONOMICALLY INSTALLED: Due to its new and revolutionary design, the Holley Centrivac Sandwich Governor can be installed on most popular truck engines without need for special drive, linkage, or adapter accessories. Only one piece of metal tubing is used, connecting governor control valve with the governor mechanism.

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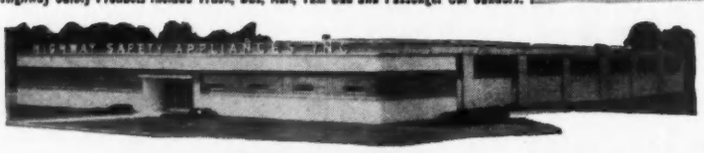

HIGHWAY SAFETY APPLIANCES, INC.
1381 Marshall Avenue, Saint Paul 4, Minn.

Bottlers' Body

Continued from Page 63

slats are oval sections, giving both strength and good appearance.

Painting and Lettering

AGAIN, emphasis is placed on the suggestion that paint and color schemes give every consideration to impressing the public with the feeling of neatness and cleanliness, to create public confidence in, and prestige for, the product being delivered.

Also, color combinations and lettering layouts can have much more eye appeal, and be a great deal more attractive if they are properly blended with new modern lines of today's chassis.

It will be noticed that a streamlined advertising sign or brand name panel is shown on the open body design. This is interchangeable with, and can be used on, the closed body.

END

Please resume reading on Page 64

Internal Combustion Engines

"Internal Combustion Engines" is the title of this new 600-page book written by Edward F. Obert, one of the foremost power engineers in the field. This hand book contains essential information on present day power plants and is of interest to the automotive engineer as well as the beginner. In addition to diesel and gasoline engines for automotive, train and airplane duties, this second edition offers increased coverage of gas turbines, dual fuel engines, gas diesels, fuels, lubricants, and additives.

Although theoretical aspects of the various processes are fully developed, such material has been centralized to ensure that the remainder can be understood by the layman. The thermodynamic analyses of the engine are made both from the concept of a cycle and in greater detail by use of thermodynamic charts.

Injection carburetion and injection pumps for both gasoline and fuel oil are explained and illustrated in detail. Exhaust gas turbines, free-piston engines, and supercharging of compressors are covered. The latest theories on knock and detonation are presented while various pressure-measuring instruments for the shop and laboratory are described.

This is indeed a valuable reference book for the automotive man. Price is $7.25. International Textbook Co., Scranton, Pa.

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EMEROL MANUFACTURING CO. INC.
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Driver Training Book ....

Here is a new book on this business of driving a vehicle, aimed at the tractor-trailer operator as well as the bus driver whether they be the old timers or new trainees. Containing 92 pages of practical information on attitudes, driving practices, safety tips and related matter this publication provides the fundamentals required in operating vehicles intelligently and safely.

A study of the various sections will show what the book is designed to do. The first section is devoted to "knowing yourself and your limitations." Another covers accidents and their causes and prevention. Then comes a chapter on "knowing your equipment and how to take care of it." Finally the author has provided tips on how to drive, and an insight into motor carrier regulations.

Ralph H. Snyder, of Driver Testing and Training Service, is the author. The price of the book is $1.50. It is available from The Transportation Press, P. O. Box 381, Dallas, Texas.

A new 16-page bulletin (76-X) released by Joy Mfg. Co., Oliver Bldg., Pittsburgh, Pa., describes the complete line of Joy single-drum, multi-purpose hoists for mines, construction jobs, oil fields, and industrial plants.

Corrosion resistance superior to conventional zinc coatings with cost savings is claimed for Zincilate, the one-coat, self-protecting, anticorrosion coating described in an 8-page illustrated technical bulletin just published by Industrial Metal Protectives, Inc., 401 Homestead Ave., Dayton 8, Ohio.

MODERN ARC WELDING LESSONS AC & DC, a 192-page text book in a flexible blue fabricoid cover comprises the second part of the new five-part Hobart handbook "Electric Arc Welding—Procedure and Practice" and contains a complete series of 40 arc welding lessons. Written in "easy to understand" words, it gives all the fundamentals of arc welding, with descriptive pictures, charts and diagrams. Write Hobart Trade School, Inc., Troy, Ohio.

MICROMETERS, a 12-page booklet includes photographs with descriptions, specifications and prices of a line of micrometers "for every automotive use." Request Catalog 30 from The Central Tool Co., Cranston, R. I.

FASTENING SPECIALTIES, a fully illustrated six-page brochure describes a complete line of fastening specialties designed to offer installed economy in both metal-to-metal and metal-to-wood applications. Items available from stock include blind rivets, anchor nuts, screw fasteners, adjustable pawl fasteners, and door retaining springs. For free copy, write South Chester Corp., Philadelphia, Pa.

(TURN TO PAGE 118, PLEASE)

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Fleetman's Library

Continued from Page 116

IGNITION CATALOG, a 148-page reference manual (in color), covers the years spanned by present vehicle registration. It is completely illustrated and combines cross reference listings. A copy may be obtained by writing F. & B. Mfg. Co., Chicago, Ill.

METCO NEWS, a 4-page pamphlet, shows how Metcoloy No. 2, highchrome, high-carbon stainless steel alloy is saving hours and dollars for metallizing users. It includes descriptions of two applications. Write for Vol. 5, No. 4, to Metallizing Engineering Co., Inc., Long Island City, N. Y.

PORTABLE TOOL CATALOG, a 72-page book, illustrates and describes over 135 SKIL electric and pneumatic tools. It includes complete specifications and features, applications and uses. Write Skilsaw, Inc., Chicago, Ill.

DIESEL ENGINES, bulletin 1506, a 16-page, two-color catalog describing the new Buda DA diesel engines, includes detailed specifications of the various features including a full explanation of the controlled combustion system. Four pages are devoted to pictures and stories about installations of these engines in actual trucks. Write Buda Co., Harvey, Ill.

ENGINE LATHE CATALOG, contains 8 pages of detailed photographs and explanations of important parts and features of a new lathe, as well as large, full-view photographs of both front and rear views of the entire lathe and complete specifications. Write for Catalog No. 183. The Springfield Machine Tool Co., Springfield, Ohio.

DRIVER'S MANUAL, by Theodore Mattern and Anne J. Mathes, both members of the New York and Federal Bar, is available in two editions paper-bound at $1.00 and cloth-bound at $2.00. Oceana Publications, N. Y., N. Y.

DRIVER SCHOOL FILMS, a comprehensive and correlated series of motion pictures and slide films on driver education for use in high schools throughout the country are to help fill a long standing need for audio-visual materials. The series includes three motion and 12 slide films covering all important points involved in operating an automobile. A booklet containing descriptions of the films and suggestions on presentation methods is provided. Orders for the films priced at $69.75 should be submitted to General Motors Photographic, Detroit, Mich.

TRUCK BODY CONSTRUCTION, a four-page folder describes a technique by which truck body manufacturers can adapt modern line-assembly methods to custom body building. A copy may be obtained from Lindsay Structure, Inc., Skokie, Ill.

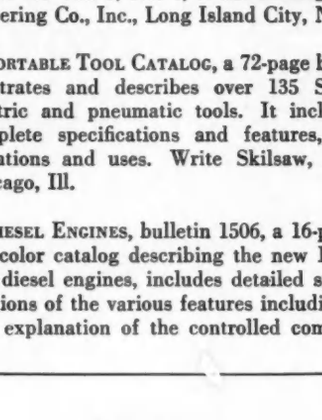
SERVICE TRUCK BODIES, a small 20-page brochure containing pictures, specifications and descriptions of a line of utility type service bodies and trailer, may be procured by writing Artisan Products, Inc., Cleveland, Ohio.

TRAFFIC ENGINEERING HANDBOOK, a revised and expanded comprehensive source book of techniques, principles and standards relating to street and highway traffic control and design was prepared by 16 of the foremost authorities on the many elements of traffic engineering. Featuring 205 tables, 215 illustrations, 489 definitions of traffic terms, and 520 pages, the handbook covers such varied subjects as traffic accidents, traffic studies, roadway capacity and design, traffic signals, speed regulations and zoning, traffic signs, and street and highway lighting. A copy may be obtained from the Institute of Traffic Engineers and the Association of Casualty and Surety Companies, N. Y., N. Y., at $6.00 per copy.

TRANSPORTATION FINISHES, a 26-page booklet, incorporates recommendations for finishing transportation equipment. In addition to general cleaning, priming, surfacing, sanding and painting procedures with various types of protective coatings, there is included a large chart. This chart lists the company's products and processes with complete application instructions and necessary technical information, along with respective government specification numbers. Write American Chemical Paint Co., Ambler, Pa.

17

CLEANING SHORT-CUTS to help you Increase Maintenance Efficiency Reduce Maintenance Costs



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- Declogging radiators
- Stripping paint from bus bodies
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Revised SAE Oil Grades Score Three-Way Advance

The newly revised SAE Crankcase Oil Classification eliminates two motor oil grades, is more logical, and sets up oils for a wider operating range than its predecessor. Vehicle manufacturer, oil refiner, and the motorist stand to gain from these changes.

The new classification is shown in Table 1, the one it replaces, in Table 2. In comparing the two, note first that grades 60 and 70 have been eliminated. (This was approved earlier this year.) They were dropped because of their extremely limited usage.

Second significant change is the addition of the 5W classification. The 5W oils are considered desirable for subzero operation, particularly cold starting. Studies made by a group of the SAE Fuels & Lubricants Committee, in cooperation with CRC, showed that using 5W instead of 10W oil brings a 33 per cent average increase in cranking speed. These researches also disclosed satisfactory viscosity stability, oil consumption, and wear resistance with 5W oils.

Car manufacturers have recommended 10W oil for temperatures down to —10 F. Below this, 10W plus 10 per cent kerosene was the usual practice. But this diluted oil was considered unsatisfactory because of its viscosity instability. The 5W oils can operate at temperatures considerably below —10 F without the disadvantage of the diluted 10W.

The winter grade oils, 10W and 20W, now a part of the SAE Crankcase Oil Classification, previously were not included. They were listed separately in the SAE Handbook under the title Automotive Manufacturers' Viscosity Classification. Both grades are now a part of the revised SAE Classification.

The revised Classification also is more logical because the viscosities are specified at temperatures more nearly those at which the oils operate. Winter grade viscosities are given at 0 F; the other oil viscosities are given at 210 F. The former classification specified viscosity for the 10, 20, and 30 oils at 130 F.

Advantages accrue to vehicle builder, oil refiner, and vehicle owner alike from this refinement of the old oil classification.

The manufacturer now can specify more exactly the correct lubricant for the vehicle because oil classification is more logical. The elimination of grades simplifies stocking and distribution problems of the oil refiner. And the vehicle owner gains better protection for his engine at subzero temperatures, because of the 5W oils, and he also has a better guide for changing oil.

Table 1—Revised SAE Crankcase Oil Classification

SAE Viscosity Number	Viscosity Range, Saybolt Univ., Sec. at 0 F		at 210 F	
	Min.	Max.	Min.	Max.
5W	—	4,000	—	—
10W	6,000 (Note A)	Less than 12,000	—	—
20W	12,000 (Note B)	48,000	—	—
20	—	—	45	Less than 58
30	—	—	58	Less than 70
40	—	—	70	Less than 85
50	—	—	85	110

Note A. Minimum viscosity at 0 F can be waived provided viscosity at 210 F is not below 40 Saybolt Seconds Universal.
Note B. Minimum viscosity at 0 F can be waived provided viscosity at 210 F is not below 45 Saybolt Seconds Universal.

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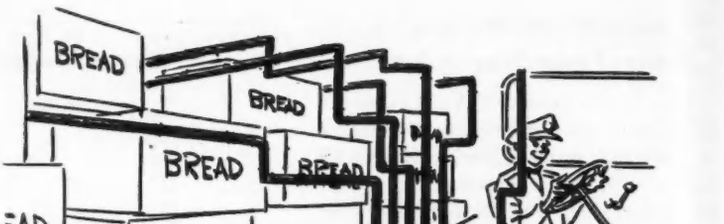
Bakers Save Dough with Cargo Heaters

Controlled cargo temperature keeps bread fresh and makes possible longer routes



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And the dividend is for you whenever you choose to use it. Bendix* Starter Drive—the finest and most reliable starter drive in the industry—offers a refund plan that will bring you double profits. There's a profit from the sales of new starter drives, and a profit from the return of the used drive to the Bendix Drive Central Distributor. It truly pays dividends to use only genuine Bendix Starter Drives on every job. *REG. U. S. PAT. OFF.

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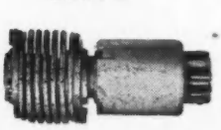


RETURN THE OLD ONE WITH THIS TAG →

THEY'RE WORTH MONEY! TO YOU

ECLIPSE MACHINE DIVISION of ELMIRA, NEW YORK — Bendix AVIATION CORPORATION

Export Sales: Bendix International Division, 72 Fifth Avenue, N. Y. 11, N. Y.

By R. H. Hunter
Hunter Mfg. Co.

AN INCREASINGLY important factor in achieving maximum sales and minimum returns of bread and other bakery products is the ability to lay down warm merchandise at the point of sale.

For this reason few problems in the baking industry have come in for more discussion and experimentation since the last war than have those which are involved in the maintenance of proper temperatures in delivery vehicles to assure highest quality and saleability of this highly perishable type of merchandise. Only within the past several years, however, has equipment become generally available that is capable of accomplishing the desired objective in a practical and economical way.

Many bakery products are adversely affected by chilling or freezing temperatures encountered during delivery. National authorities on the subject testify that a loaf of bread chilled (not frozen) in transit immediately becomes one day old to the consumer's "feel" although it may have come from the oven only a few hours before.

A baker in Indiana who checked into his problem of "returns" found that his percentage of returned bread was directly proportionate to the distance his product traveled for delivery during cold weather. On short haul deliveries, where the bread was least exposed to thorough chilling, his product outsold competition and he had few returns. Where his delivery haul was long and his competitors delivered unchilled bread the situation was reversed. As a result the company will deliver all its bread this winter in heated vehicles.

Chilling or freezing during delivery also affects the appearance as well as the quality of other bakery products.

Bakers' frostings have a tendency to check or crystallize when subjected to lower temperatures and many cream fillings crack and separate under the same exposure.

Extensive tests carried out by a national producer of a name brand of cakes and pastries showed conclusively that baked goods can be delivered by truck any reasonable distance provided they are maintained at approximately room temperature while in transit.

During a demonstration for executives of the company last winter, cakes and specialties were loaded in a heated vehicle at the bakery and delivered to a retail outlet over a hundred miles away while the outside temperature was well below zero. Upon delivery, examination and testing showed the merchandise to be in perfect condition and just as salable as when it was loaded at the bakery. The temperatures recorded in the truck averaged 65 degrees F and were under thermostatic control.

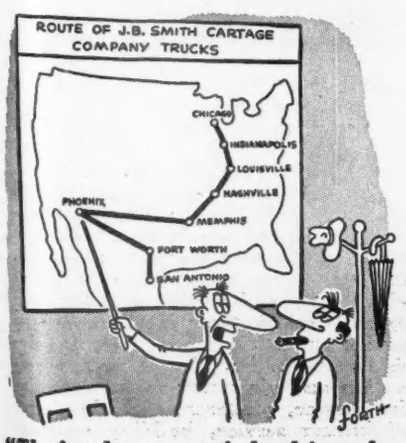
This organization has since authorized extension of delivery routes to an extreme of 229 miles using heated vehicles. Previously routes were limited to a maximum of fifty miles in length because the products could not be delivered in salable condition beyond that distance during cold weather.

With the advent of combustion heaters, developed and perfected for aircraft and vehicular heating during World War II, it has become possible to install thermostatically controlled heating systems in delivery trucks and trailers which have proved completely satisfactory from every point of view.

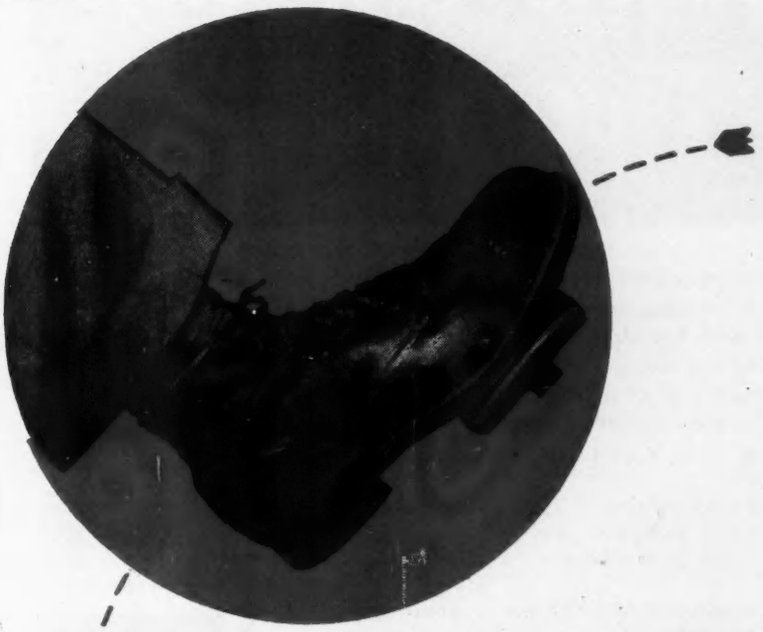
Trailer installations of this type have the sealed combustion heater encased and mounted on the outside nose of the vehicle just like a refrigerating unit. In operation these heaters draw air from the floor of the vehicle, heat it to temperature required and deliver it back into the trailer with no possibility of contamination by fuel or exhaust odors. Even when the heater is installed inside a truck or trailer there is no danger provided the installation is properly maintained to eliminate any possibility of broken fuel lines.

Proper selection of heating equipment and careful installation are vitally important. The heater should have adequate capacity for the vehicle in which it is to be used. Consideration must also be given to vehicle body size and construction, whether it is insulated or uninsulated, and to the climate in which it will operate. Naturally, temperatures can be held at higher values and can be more consistently maintained in insulated vehicles and those in which windows, doors and other joints are weatherstripped to prevent the inflow of outside air into the body and between the body walls.

Generally speaking, a heater of ample capacity operating under thermostatic control will prove more economical than smaller equipment which must operate continuously at or near maximum capacity to maintain required temperatures.



"That's where one of the drivers has a girl friend."



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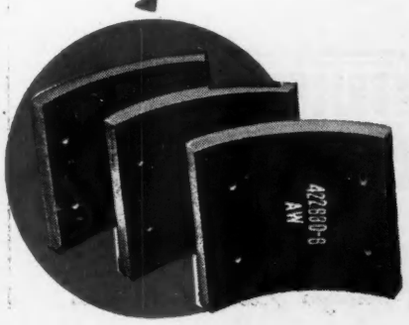
Thermoid Heavy Duty Brake Blocks provide maximum "safe stopping" at minimum cost per mile.

They stand up under high operating temperatures. Even when worn thin, they give full brake action. They won't score or wear brake drums.

Thermoid Heavy Duty Brake Blocks work smoothly, quietly, reliably. Wet or slushy weather won't affect their efficiency.

More and more leading fleets are relying on Thermoid Heavy Duty Brake Blocks for sure, safe stopping that ups fleet efficiency. Ask your Thermoid Distributor or Fleet Specialist to show you how you too can reduce operating costs.



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tire reduces fuel costs per mile

These are three of the important reasons why more and more leading operators today specify rigs equipped with Hendrickson Tandem Units.

Here are the design features . . . the result of Hendrickson's years of experience in the industry . . . which assure reduced operating costs.

- Equalizer Beam Construction . . . reducing each bump 50%
- Ball and Socket Joints . . . providing maximum flex and reducing torsional stresses
- Below Load Suspension . . . eliminating brake chatter
- Fixed Centers Between Wheels . . . assuring perfect axle alignment

HENDRICKSON'S ONE BASIC DESIGN IS RIGHT FOR EVERY TANDEM APPLICATION

Follows the Leader! HENDRICKSON TANDEM

HENDRICKSON MOTOR TRUCK COMPANY

8001 West 47th Street • Lyons (Chicago Suburb) Illinois

Radiant Heating

Continued from Page 66

turn, are controlled by room thermostats, in conjunction with an outdoor weather anticipating control.

One of the fine points of the control system is that temperatures in the various areas can be controlled independently of the other areas. The storage area, for example, never is heated above 65 deg, while the general office can control its heat to 72 deg.

Advantages of Radiant Heating

THIS system of heating is ideal for a garage of this type. Coming from the floor, the heat thaws off the ice and snow that accumulates through the normal operation of the buses. Also, there are no cold floors or cold drafts for the mechanics working on the buses.

Needless to say, such good working conditions are appreciated by the personnel.

From the operating cost standpoint, this is a very economical system, showing a saving, according to management, of 20 per cent of the fuel costs over the conventional type of heating.

The building was designed by the Howard R. Green Co., Consulting Engineers, Cedar Rapids, Iowa. The general contractor was R. L. Dressler, Chicago. The plumbing and heating was installed by R. P. Matthews, Cedar Rapids, Iowa, and the electrical work by Cedar Rapids Electrical Supply Co.

END

Please resume reading on Page 67

IHC Aristocrat Troubleshooters

Two new International Harvester service-utility trucks specially designed for use in the service and repair field feature Aristocrat "troubleshooter" bodies exclusively designed for L-110, L-120, L-130, or L-150 International chassis. The bodies are factory-mounted. The large open loading area, the more readily available storage space, and the roomy compartments fitted with shelves and partitions of the utility body makes them ideal for use in service and utility trades such as television and radio, electricians, refrigeration and air conditioning, automotive service, plasterers and plumbers, oil burner service, building contractors, vending machine service installations, and public utilities.

proved aluminum is best!

These advertisements, by some of America's foremost truck and trailer manufacturers, feature aluminum bodies.

That's because the builders know that aluminum makes their units much more saleable to profit-conscious operators!

The operators *know* it cuts out thousands of pounds of deadweight. They *know* it increases payload. They *know* it cuts maintenance and operating costs.

To builders: If you're not already reaping the extra sales aluminum bodies can give you—call a Kaiser Aluminum office today for more information!

To operators: If you're not already getting the extra payloads that aluminum bodies can give you—call an experienced body manufacturer today for more information!

You'll get *proof* that you can profit more with bodies built of aluminum!

Kaiser Aluminum

A major producer in a growing industry

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Wichita • EXPORT OFFICE, OAKLAND, CALIFORNIA • WAREHOUSE DISTRIBUTORS IN PRINCIPAL CITIES

Winterized Tire Tests

Continued from Page 61

ized mud-snow type, consists of two tires in which the characteristics of the preceding two groups have been combined. Each of these tires is a basic stud type; one having transverse cuts, and the other having a lacerated surface.

In all cases, each tire was compared against a standard tire having a conventional rib-type natural rubber tread. Results with this tire are considered to be the standard or base-line for comparative purposes, and this tire is hereafter referred to as the "control" tire.

In view of the fact that many tires are now composed of varying amounts of the new cold synthetic rubber, a secondary control tire compounded with a cold synthetic rubber tread, but identical in all other respects to the natural rubber control tire, was tested. In this way, it is possible to isolate the effect of tread compound from the effect of the tread design or winterization process.

Prior to the tests, each manufacturer furnishing tires was requested to break-in tires (with the exception of the mud-snow type) to the extent necessary to produce maximum traction, although this was not done in all cases.

Since winterized tires are normally used on the rear wheels only, they were so used as the standard procedure in this project. Obviously, more pronounced differences in stopping and cornering performance could be expected with test tires or chains on all four wheels, but the Committee felt that the test procedure should approach normal usage wherever possible. In order to measure the potential ability of the tires, however, a few runs were made with test tires on all four wheels.

All tires were size 7:60 x 15 and were tested at 24 lb. pressure. Tire chains were new and of the type in which each link of the cross-chain is reinforced by a bar.

Stopping Distance Tests

ALL stopping distance[1] tests were made from a speed of 20 mph, using a trailing fifth-wheel speedometer-odometer device. In making each stop, the driver would attain a constant speed slightly in excess of 20 mph, remove his foot from the accelerator, depress the clutch, and apply the brakes at exactly 20 mph. The stopping distance was recorded by the odometer, which was actuated by the driver or observer at the instant of brake application. With the exception of those tests involving special driving techniques, such as intermittent braking, all stopping distance tests were made by locking the brakes.

Tractive Ability Tests

TRACTIVE ability of the various tires was determined by means of a tow test by measuring the drawbar pull of a car equipped with a pair of test tires on the rear wheels. In all cases the driving wheels were operated at an essentially constant per cent-slip[2] over a course approximately 100 ft in length. Engine speed was maintained at 1000

(TURN TO PAGE 130, PLEASE)

[1] A stopping distance as used in this report is the distance travelled from the instant of brake application to the point at which the vehicle comes to rest, and does not include driver perception or reaction distance.

[2] "Per cent-slip" is the excess distance travelled by the surface of the tire beyond the distance which the vehicle moves, expressed as a per cent of the distance which the vehicle moves. For example, 200 per cent slip means that the surface of the tire moves a distance three times as far as the vehicle moves, or twice as far additionally to the distance which the vehicle moves.

4 times

4 times

4 times

With four times the power of light-hitting high-speed tools, the CP-528 FENDER IRON not only smooths out dents and wrinkles on car fenders and bodies, but does equally good work on heavy truck fenders.

A wide range of yokes meets the various requirements for deep well fenders, body panels and turret top jobs.

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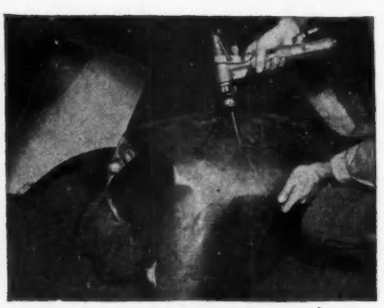
When damage is not excessive, roughing out with CP FENDER IRON can be done without removing fender or wheel. The job is completed with no marred metal, and without requiring priming and painting.



Additional uses for the CP FENDER IRON are provided by attachments, such as a cutting tool for removing a badly damaged part of a fender for replacement with a new section.

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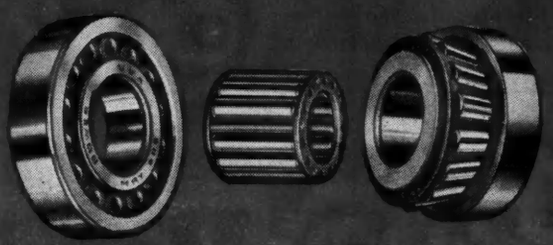

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(Division of Federal-Mogul Corporation)

Tire Tests

Continued from Page 128

rpm on ice and 1500 rpm on snow, and slippage was maintained at approximately 200 per cent, resulting in a ground speed of approximately two miles per hour on ice, and three mph on snow.

The drawbar pull was measured by a hydraulic dynamometer attached to a second or "hold back" car. Slippage was controlled by operating the test car at a fixed engine speed and holding a fixed road speed by means of the hold-back car. Since the tractive effort of tires varies with the slippage, this procedure was necessary to produce comparable results. For the same reason, the test car was equipped with a locked differential so that both rear tires had the same known rate of slippage.

Engine speed of the test car was measured by a tachometer. Revolutions of the rear wheels were recorded with revolution counters. Knowing these values, it was possible to compute per cent of slip for each run. The elapsed time of each run was measured with an electric timer. Intercommunication equipment was used to coordinate the two vehicles. Rolling resistance of the front tires on glare ice was found to be 33 lb; this value was added to the drawbar pull to arrive at the total tire effort.

Cornering Ability Tests

CORNERING ability was measured by determining the maximum speed maintainable on a glare ice circle of 200 ft radius. In determining this value, the test car, equipped with test tires on the rear wheels only, was driven around the circle at gradually increasing speed until side-skidding resulted. The driver noted this speed and then by clocking the time required to drive around the circle at slightly less than this speed, it was possible to compute the maximum speed maintainable.

Analysis of Test Results

SINCE the performance of any tire operating on a snowy or icy surface varies with different temperatures, and since the Committee was interested primarily in relative performance, all results presented herein are based on a "performance rating," defined as follows:

$$\text{Stopping Ability Rating} = \frac{\text{Control Tire Stopping Distance}}{\text{Test Tire Stopping Distance}} \times 100$$

$$\text{Traction Ability Rating} = \frac{\text{Test Tire Tractive Effort}}{\text{Control Tire Tractive Effort}} \times 100$$

$$\text{Cornering Ability Rating} = \frac{\text{Test Tire Cornering Ability}}{\text{Control Tire Cornering Ability}} \times 100$$

In every case, therefore, the control tire rating is 100. Test tire ratings

(TURN TO PAGE 132, PLEASE)

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BIEDERMAN

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An All-Star Truck
Constructed of All-Star Units
Doing an All-Star Job Since 1920

DEALERS: Compare the Biederman National Standard Model with any truck on the market and you will agree that it is an All-Star team in itself.

Only the most sturdily constructed units of America's leading manufacturers are built into it.

Biederman Trucks win by performance. Inquiries regarding dealership solicited.

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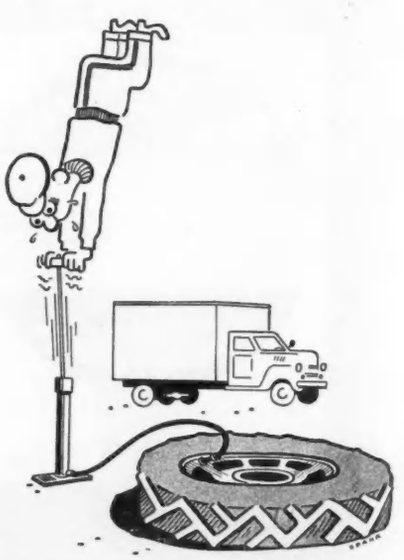

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Your maintenance reports will prove that American Brakeblok Brake Lining lasts longer, responds better, costs less to maintain than any other make of lining. Leading bus and truck operators make it first choice simply because it gives them more stops on *their* penny. It will do the same on your equipment.

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Quickly available from NAPA jobbers and warehouses everywhere.

AMERICAN Brake Shoe COMPANY

AMERICAN BRAKEBLOK DIVISION

DETROIT 9, MICHIGAN

Tire Tests

Continued from Page 130

greater than 100 indicate performance better than the control tire; less than 100 indicate performance poorer than the control tire. For example, if the stopping distance of a test tire was observed to be 140 ft and the corresponding distance for the control tire was found to be 175 ft, then the stopping ability rating of that particular test tire would be $\frac{140}{175} \times 100$ or 125.

It should be realized that the rating for stopping ability as so calculated, exaggerates the actual improvement. It measures the difference in performance as a percentage of the test tire stopping distance, which (when there is any improvement) is a smaller value than that for the control tire. The ratings for traction ability and cornering ability, on the other hand, show directly the per cent improvement for the tires tested. Hence the apparent discrepancies, for stopping ability tests, between the ability ratings and the per cent improvement.

Conclusions

ON the basis of stopping, traction, and cornering performance on snow and ice, the most significant conclusions to be derived from these tests are:

1. While the performance of several of the specialized tires shows definite improvement for specific conditions over conventional tires, their over-all improvement is not great enough to warrant less care or precaution when driving on slippery surfaces with these tires than with conventional tires. As an example, the stopping distance on glare ice of the best specialized tire tested is still about eight times the normal stopping distance on dry concrete.

2. As a corollary to the above, the basic recommendations of the Committee on Winter Driving Hazards for safe driving on snow and ice are still applicable. These recommendations include: (1) get the "feel" of the road; (2) adjust speed to road and weather conditions; (3) keep the windshield and windows clear; (4) use tire chains for severe snow and ice conditions; (5) pump the brakes to stop; (6) follow other vehicles at a safe distance.

3. Generally speaking, the results show that progress has been made toward producing safer tires for winter driving and it is hoped that these tests will stimulate the further development of more effective specialized tires.

4. Considering those tires showing some improvement on ice over conventional natural rubber tires, this improvement is most marked, percentage-wise, at temperatures near freezing where the hazard is greatest. Actual performance of all tires on ice is of course better at lower temperatures.

5. Of the winterized group of tires, those having lacerated treads offer the best over-all improvement, showing an average improvement of about 20 per cent over conventional natural rubber tires for all tests on all surfaces. This improvement is approximately equal on both ice and snow.

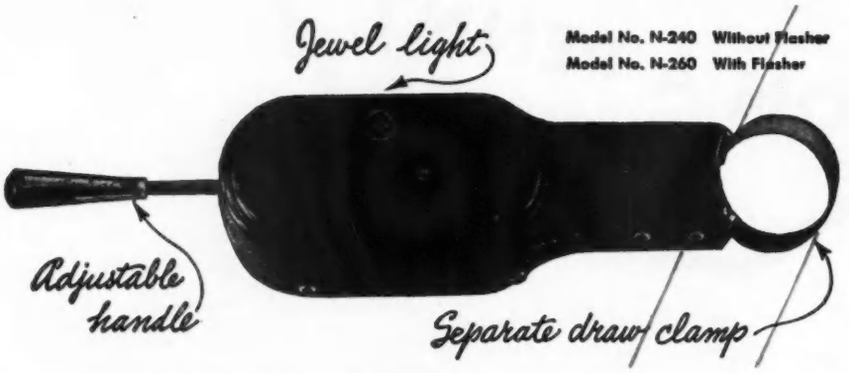
6. Winterized tires of the type containing materials embedded in the tread offer up to 10 per cent overall advantage over conventional natural rubber tires. In general, this group shows somewhat greater advantage on ice than on snow.

7. Tires of the mud-snow group show an average improvement of 20 per cent to 30 per cent on loosely packed snow and rough ice. With the exception of one tire which showed an improvement averaging about 30 per cent on all surfaces, however, tires of this group are of little benefit on glare ice.

8. Tires of the winterized mud-snow group, in which the winterization proc-

(TURN TO PAGE 134, PLEASE)

For a Better Switch... Better Switch to ARROW



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POSITIVE PROOF INDICATION. One feature alone makes it worth the low cost. That's a tell-tale jewel light that tells you whether your signal lights are working—not just the switch. If one or more of your lights are out, or there is a break in the lamp circuit, the jewel light will indicate that the system is not functioning perfectly.

FINGER-TIP CONTROL. Adjustable handle can be moved in and out to provide finger-tip control regardless of the size of the steering wheel.

EASE OF INSTALLATION. Separate mounting bracket fits any size steering column merely by tightening a screw—a matter of seconds.

BUILT-IN PROTECTION. Built-in line fuse prevents short circuit caused by improper wiring from affecting other lights in your vehicle.

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ATTRACTIVE, MODERN DESIGN. Compact, good-looking.

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See the amazing new Arrow switch at your dealer's today.

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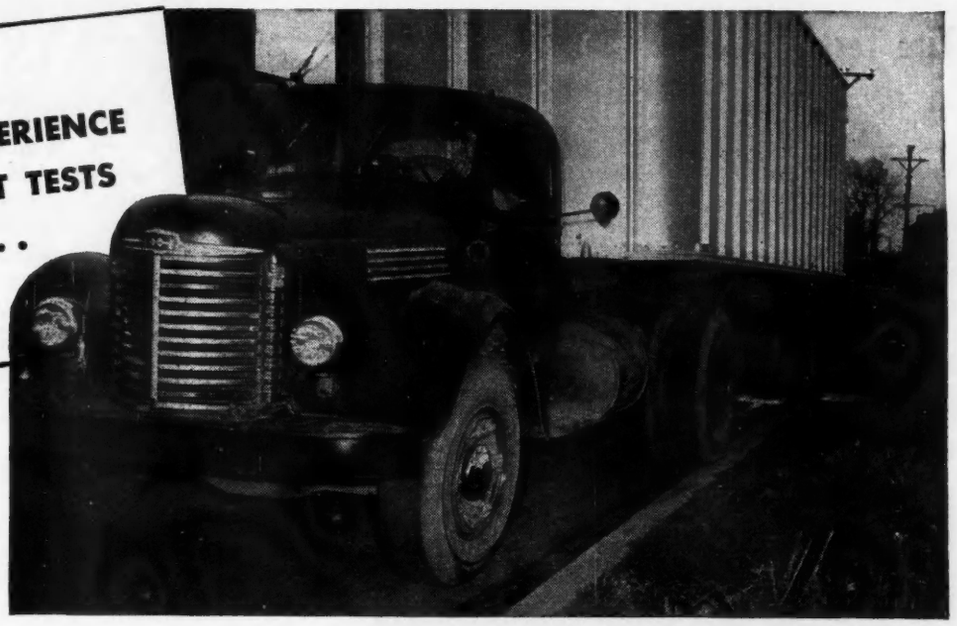

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NYLON CORDS PROTECT AGAINST ALL THESE CAUSES OF TIRE FAILURE

Heat — Nylon cords can withstand hotter temperatures than a tire will ever encounter on the highway.

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Fleet operators are learning from their own experience that nylon cord tires give a higher percentage of successful recaps. Nylon's properties of superior resistance to heat, moisture, flex fatigue and bruise damage give tire cords longer life. That's why nylon tires can add up to less road delay, and lower cost per ton mile. Try a set on your toughest haul, for your heaviest loads—compare them with other tires —and see for yourself.

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For NYLON . . . for RAYON . . . for FIBERS to come . . . look to DU PONT

Tire Tests

Contiued from Page 132

ess is combined with the mud-snow type of tread, show an average improvement of about 25 per cent conventional natural rubber tires for all conditions.

9. Several of the specialized tires, although showing some improvement under specific conditions, are no better and in some cases even worse than the conventional natural rubber tires under other conditions.

10. Except for several specific and unusual surface conditions, tire chains of the type used in these tests are far superior to the best of the tires tested on snow and ice, showing an improvement over conventional natural rubber tires averaging 46 per cent in stopping ability and 475 per cent in traction ability.

11. Natural rubber is 10 per cent to 50 per cent superior to cold synthetic in stopping and traction performance on snow and ice, although cold synthetic is about 7 per cent superior to natural rubber in cornering speed on ice.

12. Best traction on ice is obtained when there is no wheel slippage: spinning the wheels when attempting to accelerate reduced traction by 50 per cent.

13. The best stability when slowing down and stopping on glare ice is obtained by leaving the clutch engaged and pumping the brakes rapidly.

14. When operating cars with a conventional clutch and transmission on wet ice which is very slippery, a hard brake application can lock the rear wheels just long enough to stall the engine which will hold the rear wheels in a locked condition and may cause the car to go into a dangerous spin. This accidental stalling of the engine is not likely to occur with a hydraulic or fluid coupling, and if it should occur, it will not lock the rear wheels.

15. Vehicles equipped with hydraulic and fluid couplings with standard, automatic, or semi-automatic transmissions lend themselves to better control when stopping on ice than vehicles with conventional clutch and transmission.

END

Please resume reading on Page 62

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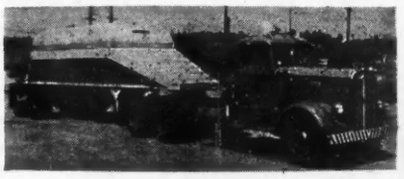

The Northwestern Portland Cement Co. recently placed in bulk cement hauling service, this tractor-trailer rig. The truck is a Kenworth Model 825, powered by Cummins NHB 209-hp diesel. It is equipped with a five-speed Spicer main transmission and a three-speed auxiliary. Aluminum frames, hubs and gear cases contribute to the unit's light weight. The utility, gondola-type, dual axle semi trailer has a carrying capacity of 625 cu ft. Sharply inclined hoppers are designed to facilitate rapid unloading in 20 min to an hr. In addition to butterfly valves, the hoppers are equipped with canvas boots to prevent loss on the highway or while unloading

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PRODUCED FOR THE AUTOMOTIVE INDUSTRY

Producing 75 million brakes is a remarkable accomplishment even in these days of large numbers and mass production methods. This remarkable record is made possible because Bendix Products Division has such things as —

A quarter century of specialized experience

Recognized engineering excellence

Research that has set the pace in design development

Proved manufacturing skill and capacity

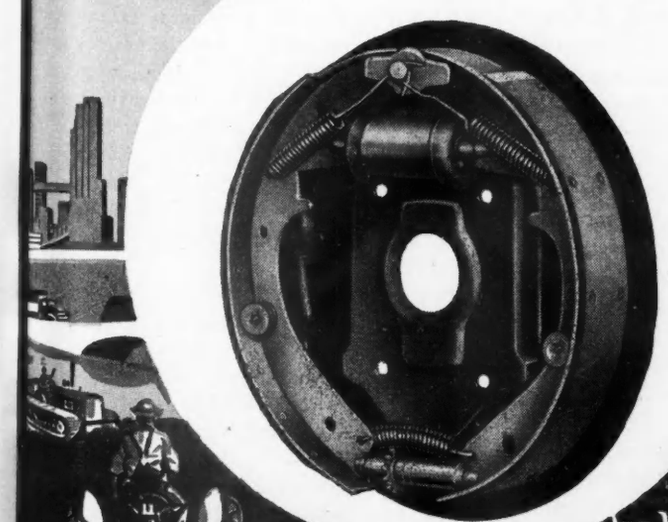
Overwhelming endorsement of the automotive industry

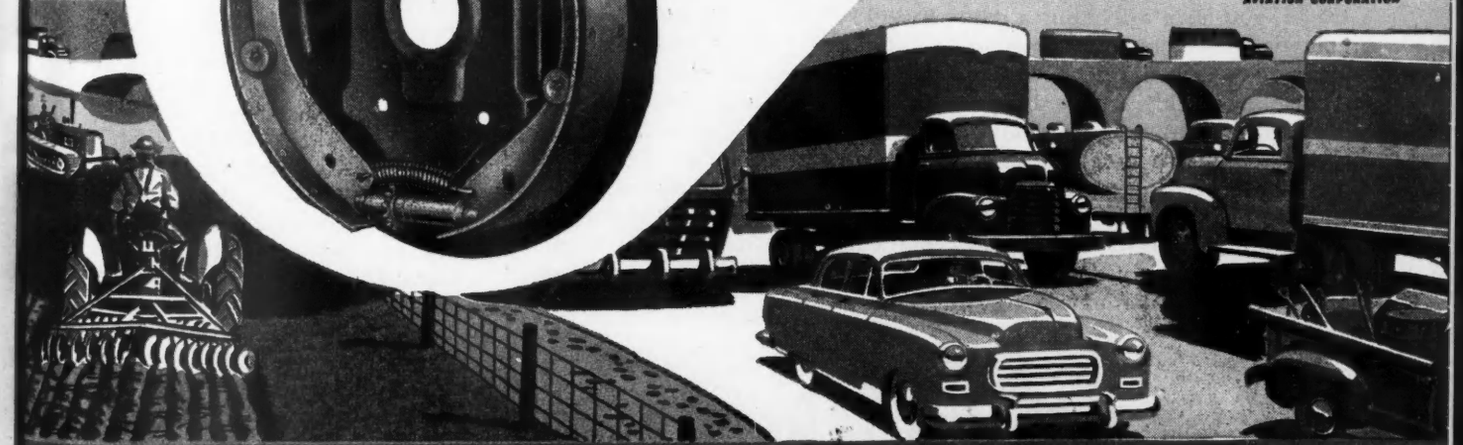
Manufacturers who put their braking problems up to Bendix — regardless of the type of vehicle — soon see what this matchless experience in the fields of creative engineering and quantity production can do.

BENDIX · PRODUCTS DIVISION · SOUTH BEND

Export Sales: Bendix International Division, 72 Fifth Ave., New York 11, N.Y. • Canadian Sales: Bendix-Eclipse of Canada, Ltd., Windsor, Ontario, Canada

Bendix AVIATION CORPORATION





BUILDERS OF THE BASICS OF BETTER MOTOR VEHICLES

sleep's unaffected... his trucks are protected

Worry! Fret! Loss of sleep thinking how fire on the road or in the garage can cause loss of equipment, loss of cargo, upset schedules and irate customers . . . all are anxieties of the past when your trucks and garage are fully protected with modern, approved C-O-TWO Fire Protection Equipment.

For example, with a C-O-TWO Automatic Fire Protection System in a trailer, you have a 24 hour a day automatic fire watchman . . . whether under way or parked. Heat detectors on the ceiling quickly actuate the system . . . then clean, dry, non-damaging, non-conducting carbon dioxide gas is flooded into every nook and corner, extinguishing the fire in seconds before it spreads and causes serious damage. After use, the carbon dioxide disappears without a trace . . . no water damage, no odors.

C-O-TWO Portable Fire Extinguishers . . . either carbon dioxide type or dry chemical type . . . render fast, positive action for extinguishing fire during the incipient stage. C-O-TWO Portable Fire Extinguishers are designed to take abuse . . . rugged construction, no extra gadgets protruding or complicated operating parts . . . built to rigid specifications to assure you of efficient fire protection.

Remember fire doesn't wait . . . let an expert C-O-TWO Fire Protection Engineer help you in planning complete and up-to-date fire detecting and extinguishing facilities for your fleet and other property now. Write us today . . . tell us about your particular fire hazards, our experience is at your disposal . . . no obligation of course.

TRADE MARK
C-O-TWO
REG. U.S. PAT. OFF.

C-O-TWO FIRE EQUIPMENT COMPANY
NEWARK 1 • NEW JERSEY
Sales and Service in the Principal Cities of United States and Canada
Affiliated with Pyrene Manufacturing Company
MANUFACTURERS OF APPROVED FIRE PROTECTION EQUIPMENT
Squeez-Grip Carbon Dioxide Type Fire Extinguishers • Dry Chemical Type Fire Extinguishers
Built-In High Pressure and Low Pressure Carbon Dioxide Type Fire Extinguishing Systems
Built-In Smoke and Heat Fire Detecting Systems

Schenley Safety Record

Continued from Page 51

tal driving record since 1941. Following our latest highway achievement—the operation of virtually 3,000,000 miles with only one chargeable accident in four years for an almost unbelievable frequency rating of .03—we have been literally flooded with the same question.

Three Point Plan

THE answer, I think, is a simple one. We play percentages. By that I mean, while we realize no fleet of tractor-trailers such as Schenley's can completely escape accidents indefinitely, our entire highway safety program nevertheless is keyed to the no-accident idea.

If one consciously strives for perfection every driving hour, he either will attain it or, at least, hold accidents to the very minimum. To get peak results from this r e a l i s t i c philosophy, we adopted a three-point plan which, as much as anything else, has contributed to the success of our safe-driving operations.

Pre-Employment Program

POINT No. 1—and most important—is our pre-employment character and record analysis. At the time a man applies for a job as a Schenley driver, he is interviewed by our garage manager, a keen judge of human beings who has had many years experience in the trucking field. The applicant's appearance, mannerisms and conversation are carefully studied.

For example, experience has shown that a sloppily-dressed man might very likely make a careless, disinterested driver while a flashy or gaudy dresser often reveals a personality bent on speed or recklessness. Naturally, these types must be avoided. Profanity, double-talk or other irregularities in a man's speech or manner also are closely observed for their clues as to his character and personality.

At the same timee, the applicant's past record likewise is minutely checked. We expect him to have at least five years' highway experience, and a solid background of safe and sane driving before we'll hire him. By such thorough screening we are able to get the best and most safety-minded men and to avoid the "prone-to-accident" type.

Our theory is that if we employ none but top drivers, we already are 50 per cent of the way along toward an outstanding safety program.

Before being hired, each driver ap-

(TURN TO PAGE 138, PLEASE)

GENUINE

BOHNALITE

AUTOTHERMIC PISTONS

SERVICE DIVISION HEADQUARTERS
HOLLAND, MICHIGAN

GENUINE
BOHNALITE
PRODUCTS

- Pistons
- Engine Bearings
- Reconditioned Connecting Rods
- Rebabbitted Connecting Rods
- Piston Pins
- Water Pumps
- King Bolts
- Valve Springs
- Rod Dippers
- Water Tubes
- Babbitt Metal
- Bolts
- Nuts
- Shims
- Solders

GET IT FROM YOUR JOBBER

Silent *AUTOTHERMIC PISTONS* Start Quiet . . . Run Quiet . . . and Save On Gas and Oil!

You can't keep a piston quiet if it is fitted loosely in the bore to allow for expansion. If its skirt collapses it loses its fit. Nelson Bohnalite Autothermic Pistons are the proven solution to both problems, because they employ steel struts, paralleled by aluminum, that act as automatic thermostats to control piston fit, and maintain the same clearance—hot or cold!

When you put famous Nelson Bohnalite Autothermic Pistons in an engine, you provide your customer with the pistons scientifically designed for unequalled quietness, strength, long life and fuel economy . . . the pistons that show no loss in skirt diameter in long tests of 50,000 miles and up . . . the pistons conclusively proven in actual use by automotive manufacturers!

BOHN ALUMINUM & BRASS CORPORATION
Executive Offices • Detroit 26, Michigan
Service Division, Holland, Michigan

Schenley Safety Record

Continued from Page 136

plicant is given a rigid physical examination. After passing, he is given our "bible" of truck operation. It contains about 45 "do's 'n don't" governing our standards of vehicle handling and our over-the-road regulations. He must commit this 16-page booklet to memory, then sign a statement to the effect that he is fully familiar with the requirements.

After he has signed the statement, he is employed on a 30-day trial basis. During that time he is under strict surveillance. If he completes this trial period successfully, he is hired on a permanent basis.

From the minute he starts his 30-day trial, he is responsible for full adherance to the safety rules contained in the booklet. This policy has the complete approval of the Teamsters' Union, the Schenley company, and the men themselves, because all concerned have this common purpose—safety for the drivers, and protection of the equipment and cargoes against accident.

Camaraderie Cultivated

POINT No. 2 is the atmosphere of camaraderie and homogeneity we have developed in our motor division. Fortunately, our fleet is headquartered in a small community where neighborliness and friendliness are a natural thing. To enhance this, we impress all our men with the fact that, while they are employees of a large corporation, as associates of the motor division they are members of one big happy family.

Each man is made to feel his own importance to the organization and the importance of his individual job. He is invited to express his complaints and suggestions for improvements in the fleet's operation. Between themselves, the drivers constantly interchange valuable road information and data about near-misses. Thus, they benefit not only from their own highway experiences and observations but also from those of all the other men.

Our relation with the men is one of brother to brother rather than boss to employee. We take a personal interest in their occupational problems, and counsel them if they seek it. We point out their mistakes in a friendly way and open our office to them at all times.

Consequently, the men feel at ease and strive to outdo each other in the matter of safety. If one has an accident, he feels he has let the "family" down and regrets it. This is more than ever true since Schenley began to set notable records for highway safety. So naturally all are highly safety conscious.

Such company policies, too, as an employees' retirement plan, flowers for an ill member of the driver's family, the opening of bank accounts for his newborn babies, and similar things, also help assure each driver he's a valued member of the fleet family.

We consider the development of this point a 25 per cent factor in our safety program, because a happier, more interested driver is a safer driver who can better concentrate on the job at hand.

Defensive Driving—25%

POINT No. 3 is the regular practice of defensive driving, or as one of our drivers so aptly expressed it "expecting the unexpected." We constantly remind the men about defensive driving; pointing out that, since it is usually the other fellow who causes the accidents, mishaps generally can be avoided if they are on guard against what the other fellow might do.

Our truck operators are cautioned repeatedly about keeping safe distances between vehicles, keeping to the right,

(TURN TO PAGE 140, PLEASE)

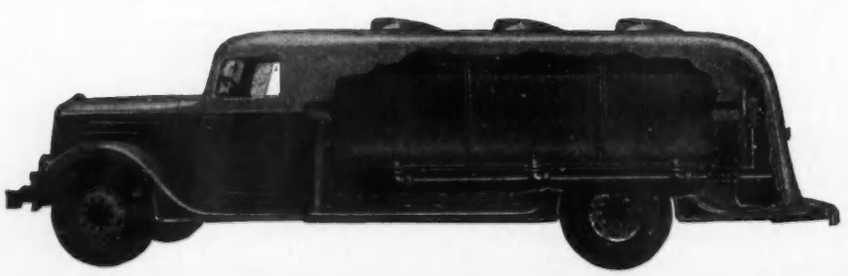
INSIGHNIFICANT IN APPEARANCE

IMPORTANT IN SERVICE

Shown above is a greatly enlarged section of the S. & J. fusible plug. Actually, it isn't as large as the end of your little finger. It is inserted into tees in the hydraulic lines which open and close the S. & J. Hydraulic Internal Safety Valves which so many of the principal petroleum marketers use inside their truck tank compartments for maximum safety.

The purpose of these fusible plugs is to release the hydraulic pressure and close any valves which may be open and discharging liquid, should fire occur during unloading operations. With no more than the heat generated from a single match, the fusible element melts and releases the hydraulic pressure which instantly closes any open valves which may be feeding fuel to the flames. No need for anyone to approach the truck and try to turn off valves by hand. It's all done automatically and quickly.

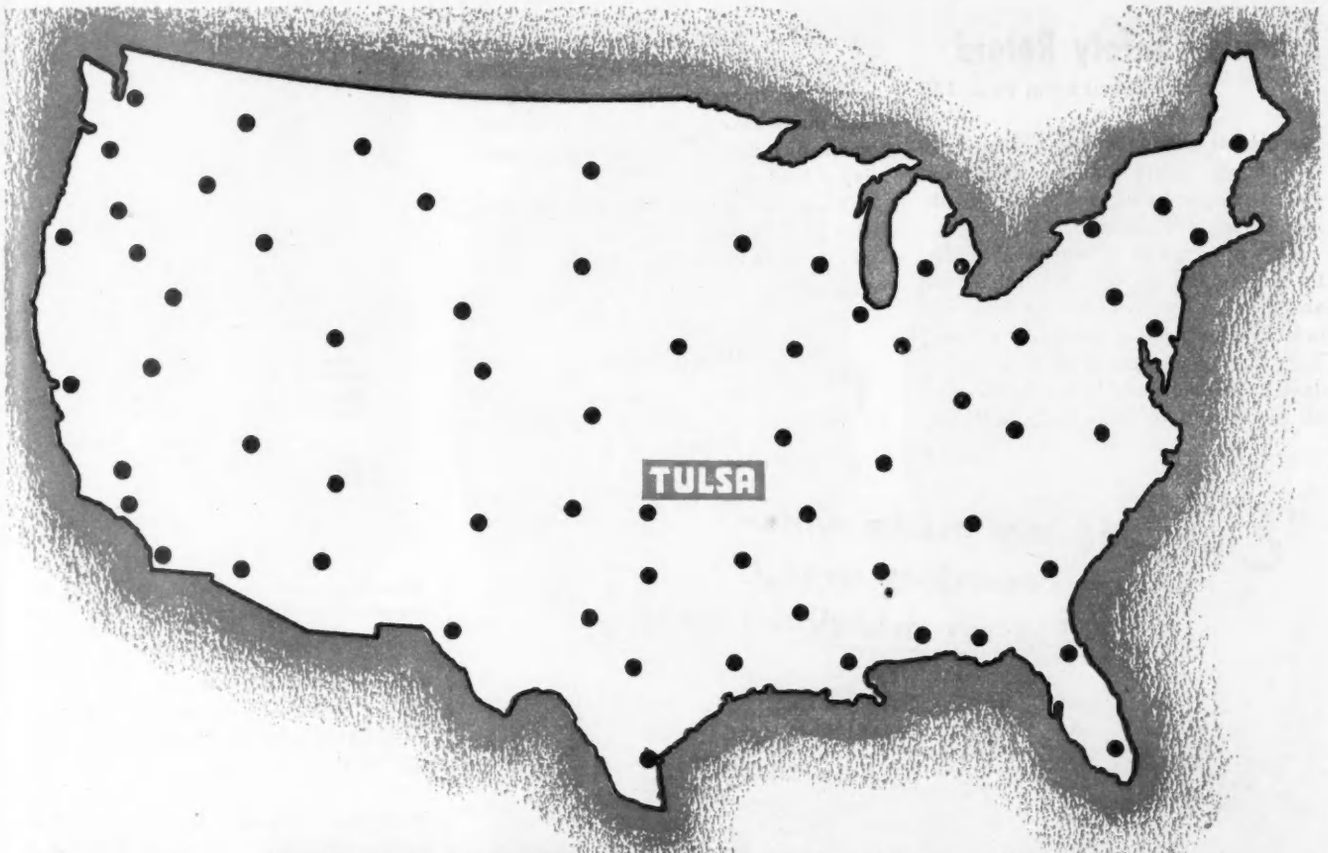
In case of a tossed cigarette or a spark at the wrong time, you'll be glad if your truck tanks are protected by the S. & J. Hydraulic Internal Valve Safety System.



Shand and Jurs Co. 917 CARLETON STREET · BERKELEY · CALIFORNIA

NEW YORK 296 Madison Ave · CHICAGO 332 So. Michigan Ave · HOUSTON 814 M & M Bldg. · TULSA 310 Thompson Bldg. · LOS ANGELES 714 W. Olympic Blvd · SEATTLE 3000 Western Ave

MONTREAL 360 Notre Dame St · VANCOUVER 550 Beatty St · DARLINGTON England



There's a **BRADEN** Distributor Near You for . . .

Fast Service

Braden Winch distributors are strategically located to adequately serve all winch operators in every state in the Union. These distributors are selected because of their ability to give the best possible sales and service help to users of truck winches. Look in the yellow pages of your telephone book or contact the Braden Factory for the name of your nearest Braden distributor.

BUY BRADEN—They are Safer

BRADEN WINCH COMPANY
Post Office Box 1709

BRADEN
Winches

TULSA 1,
Oklahoma

Schenley Safety Record

Continued from Page 138

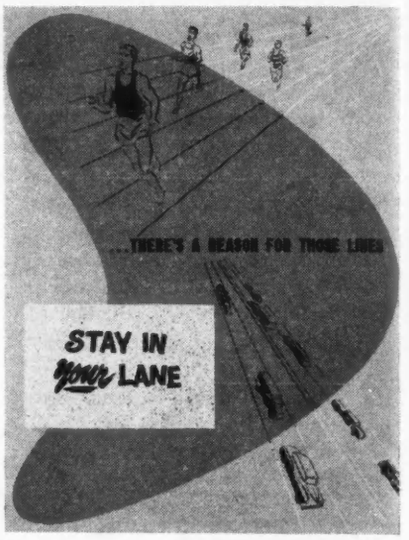
passing other vehicles only when there is sufficient safety margin, about congested danger zones, and of never taking driving advantages.

Through regular "chin-fests," bulletin boards and the drivers' "bible," we are able to impress on the men the safety advantages of defensive driving. That they have taken it to heart is evident I think not only in the fleet's overall record but in their individual performances. Most of them receive gold merit pins and certificates year after year for operating free of accidents, and many have driven hundreds of thousands of miles without so much as denting a fender.

Under our system, we credit the practice of defensive driving as another 25 per cent factor in the Schenley motor fleet safety program.

Plus Factors

THESE three primary points I have outlined add up to a 100 per cent safety program. However, because we realize that even this system is not infallable we carry our "percentage" plan still further.



Monthly safety bulletins, 8½ x 11 in, supplied by Liberty Mutual, are used

We employ first-rate mechanics to keep the equipment in first-rate condition. Yet even top mechanics can miss defects once in a while. So if that happens and a driver detects something wrong when he is about to start on a trip, he is authorized to stay in the garage or return to it until the trouble is corrected.

We log each trip in advance, so we know where the driver should be at all times. Thus if he is delayed, we can investigate to find out what has happened. At the end of each trip, the driver fills out a form noting any mechanical trouble that might have developed while he was on the road. This is promptly fixed.

We tolerate no drinking on the job or when a man reports for the day's work. If a driver were to be found drinking on duty he would be summarily dismissed. However, there never has been a violation of this edict to our knowledge, and we expect none in the future because the fellows are aware that this is a hard-and-fast rule.

While whiskey is our principal business, we appreciate the fact that drinking and driving are not compatible. On one occasion an off-duty driver was called by telephone to make an emergency run from Lawrenceburg to Chicago. He begged off. Since no substitute could be found, his services were solicited a second time. But he failed to report on schedule with the result that he was ordered discharged.

The next day he stopped in my office and explained that he had declined to

(TURN TO PAGE 142, PLEASE)

"Equipping my trucks with Servis Recorders saved buying an additional truck..."

"5 Trucks Now Do the Work of 6"

"But first of all," continued the boss, "I had a thoroughgoing talk with our truck manager out back, Ed Jones. We went over our many delivery *headaches* in detail—crowded schedules, delays, overtime, etc. Jonesy had been needling me for many months to buy an additional truck. But I wanted to see if we couldn't save that big investment by getting more work out of our present trucks.

"So we decided to try equipping our trucks with *Servis Recorders.* First we had a friendly talk with the drivers as to just what we were trying to do—to win their good will and cooperation.

"Well, sir, it worked! The performance of our trucks improved *markedly!* Now, Ed Jones admits that he can meet all delivery schedules without that additional truck he was yelling for."

There's a "moral" in all this for YOU. Write for our 16-page illustrated booklet—"*Ten Ways of Getting More Work Out of Motor Trucks.*" It's free.

The Service Recorder Company,
1375 Euclid Ave., Cleveland 15, O.

The Servis Recorder
Tells Every Move Your Truck Makes

3 GREAT MOHAWK TRUCK TIRES

SUPER CHIEF
TRUCK

An extra tread, heavy-duty truck tire for extremely long mileage. Vented shoulders reduce heat, insure longer wear.

BIG CHIEF
TRUCK

Ruggedly designed for grueling special service—excavating, logging and mining operations, either on or off the road.

CHIEF
BUS-TRUCK

Outstanding in quality throughout the country for safety, service and economy—the tire for the tough jobs.

"You get more miles on Mohawks!

Their outstanding quality has been famous among fleet operators everywhere—for over 37 years! Yes, for every truck and bus tire requirement, you can rely on Mohawks for miles and miles of extra service!"

MOHAWK

THE MOHAWK RUBBER COMPANY · AKRON 5, OHIO
Export Department — 1819 Broadway, New York 23, N. Y.

Schenley Safety Record

Continued from Page 140

work because he had been to a social party a few hours before and felt too jittery to handle his truck properly. Thereupon, we immediately reinstated him and roundly commended him for his judgment and responsibility.

Illness and Disability

IF a driver is off the job due to illness or disability, requiring hospitalization or treatment by a physician, that man must obtain a certificate of recovery from the attending physician before he returns to work. This is the rule regardless of length of absence, except for such minor maladies as a cold and for which he does not require medical attention.

Schenley's medical policy not only is unusually liberal but also serves as a check on a man's physical condition.

While off the job, a driver suffering an occupational injury gets two types of benefits:

1. State workmen's compensation. In Indiana this would amount to 55 per cent of his average weekly wage.

2. Schenley supplemental compensation. Provided an injured driver has complied with company rules, Schenley pays him for 16 weeks the difference between the state's compensation and his normal earnings at the time of injury. If still unable to return to work after that period, Schenley makes up the difference between the workmen's compensation and two-thirds of the man's normal earnings.

Incidentally, this policy also applies to employees other than drivers.

In addition to our medical policy, drivers get compensation in the form of bonuses and, of course, overtime. To avoid fatigue, they work only a maximum of 10 hours at a stretch. Where necessary, they stop overnight at approved truck stops, where their vehicles are constantly guarded.

We have a number of other safety rules which drivers are obliged to observe. All were designed to further safety, to protect the lives of our drivers, and their equipment, and the costly cargoes of whiskey, pharmaceuticals and other products they haul coast-to-coast and border-to-border.

For example, they are not permitted to loiter, speed or carry passengers. Here are a few more: There is a burglar alarm on every trailer, each door is sealed and padlocked; tractor-trailers are operated in convoys of two, three or more, and only on heavily trafficked highways; routes are selected and charted in advance, with travel time closely calculated; insurance inspectors make check-ups enroute; vehicles must be safety-inspected before leaving the plant.

And so on.

This safety program took a long while to develop. It was begun when the fleet was first organized in 1941, and has been expanded every year since. With an estimated 8,000,000 trucks alone on the highways, as compared with 5,000,000 during the last war, we realize the importance of continued expansion and refinement of our program. We shall not rest on our laurels.

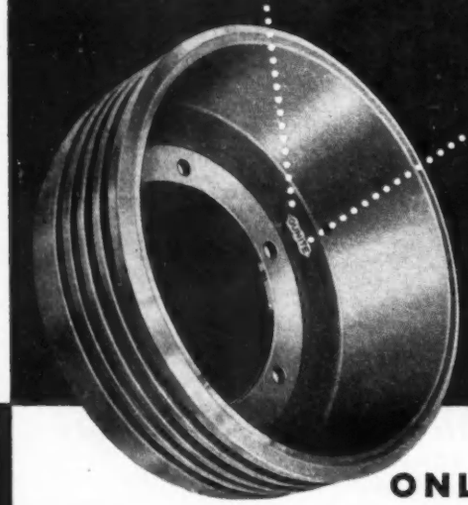
END

Please resume reading on Page 52

Truck Registrations Up

New truck registrations for September totaled 113,750 units, to make it the third best month in the truck industry's history, according to R. L. Polk & Co. The total for the third quarter—243,573 new trucks—was the greatest third quarter since truck manufacture began. September new truck totals compared with 89,253 from the same states for September, 1949. The total for the year is running nearly 100,000 units more than totals for 1949.

LOOK FOR GUNITE



...Cast Onto the BRAKE DRUM

ONLY A GENUINE

GUNITE BRAKE DRUM

BRINGS YOU

LOWEST COST PER MILE

Longer life and improved performance of GUNITE Brake Drums are due to the design and the GUNITE material of which they are made. GUNITE is specially alloyed, carefully processed metal with exceptionally strong, tough, rugged physical properties. GUNITE outperforms and outlasts other materials and brings your brake costs per mile to a minimum. Be sure you get genuine GUNITES when you order them. Some other brake drums are designed and painted to look like GUNITES. Genuine GUNITES have the GUNITE name cast onto the drum . . . look for it and be sure.

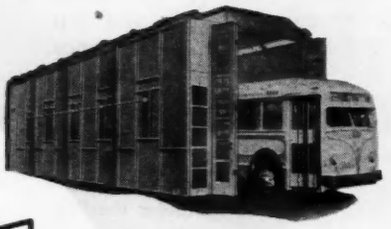
GUNITE FOUNDRIES

CORPORATION

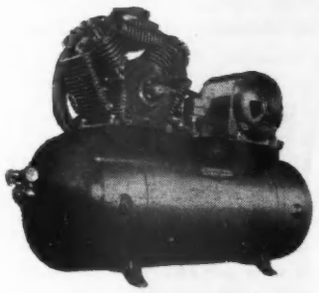
ROCKFORD • ILLINOIS

GUNITE BRAKE DRUMS FOR TRUCKS, TRAILERS AND BUSES

18 OUT OF 21 WINNERS USE DEVILBISS EQUIPMENT



SPRAY BOOTHS

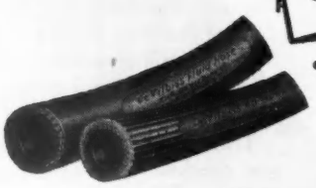


AIR COMPRESSORS

SPRAY GUNS

TAKE A TIP FROM THE "BUS TRANSPORTATION" MAINTENANCE AWARDS WINNERS...

Saint Louis Public Service Company • Capital Transit Comp... • ...ston, ...tonio ... Co., ... • ...phis, ...ing- ..., Virginia • Southern ..., Chester, Penna. • Johnson Bus Lines, Inc., ...ord, Mass. • The Dixie Traction Co., Inc., Covington, Ky. • Bristol Traction Co., Bristol, Connecticut • Palmer Motor Coach Service, Inc., Palmer, Massachusetts.



AIR, PAINT AND FLUID HOSE

HOSE CONNECTIONS

SERVICE GUNS

Again ... as every year ... the overwhelming majority of the BUS TRANSPORTATION Maintenance Awards winners depend on DeVilbiss equipment to keep maintenance standards high, costs low. DeVilbiss equipment is first with these transportation leaders year after year ... *performance* put it there ... *satisfaction* keeps it there.

Buy DeVilbiss painting and maintenance equipment for your shops ... you'll be using the equipment preferred 6 to 1 by maintenance experts ... men who have built a reputation thru their choice of finest materials, methods, and equipment ... DeVilbiss spray-painting guns and booths, hose and connections, service guns, and air compressors.

Ask your DeVilbiss distributor, or write to

THE DEVILBISS COMPANY

WINDSOR, ONT. • TOLEDO 1, OHIO • LONDON, ENGLAND
SANTA CLARA, CALIFORNIA
Sales offices in 22 leading cities

DEVILBISS

means Quality *in all four..*

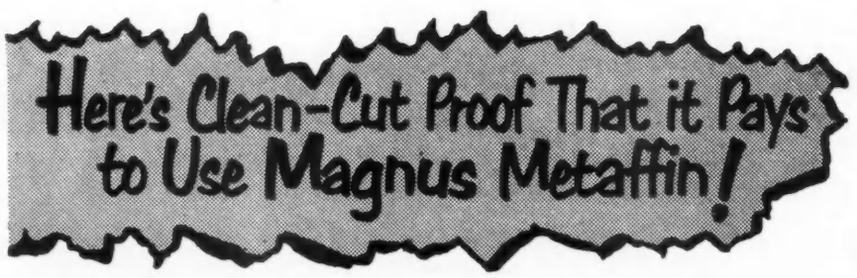
SPRAY EQUIPMENT
EXHAUST SYSTEMS
AIR COMPRESSORS
HOSE & CONNECTIONS

Drivers' Truck Operating Cost

Continued from Page 54

done, Small can either point out that it wasn't reported or locate the mechanic who was supposed to take care of it. These reports are filed for reference.

An 8½ x 14-in. daily gas and oil report, Fig. 7, is kept at the gas pump. This has a line for every truck and columns for gas dispensed (written in tenths of a gallon for more accurate auditing), oil added, odometer reading, and route number. At the bottom is a space for today's and yesterday's total gas pump reading. The totals of gas added to the trucks must check with the total shown by the pump. If a serious discrepancy shows up, an investigation is made. The daily odometer readings are used by Small to determine which trucks need greasing, tune ups, or brake inspection.



Magnus Metaffin has been used for years for the purpose of keeping sludge formation under control, and preventing internal wear in bus and truck engines. Here's clear proof of the job it does.

This bus fleet had used heavy duty oils of various makes for a long time. Nevertheless the best engine performance they could get was 132,000 miles before complete overhaul—and plenty of engines needed this overhaul at 114,000 miles.

Then they started using Magnus Metaffin in all their motor oil, at about 10% by volume. This was less than a year ago. Here are some of the results they report . . .

One engine, pulled in for overhaul at 132,000 miles, required no new pistons or bearings, and had to have new rings only. The crankshaft showed wear of less than .0005"! They figure that the cost of Metaffin protection was about $16.00 to save them over $120.00.

Another engine went 144,000 miles before overhaul, with only rings to be replaced, and negligible wear. Another went to 152,000 miles, needing only new rings, and showing crankshaft wear of less than .001". They now have a Waukesha engine that has gone 180,000 miles on a city run, and is just beginning to show signs of the need of an overhaul!

It will pay you to give Magnus Metaffin a real test in your trucks.

MAGNUS CHEMICAL CO. • 38 South Ave., Garwood, N. J.
In Canada — Magnus Chemicals, Ltd., Montreal.
Service representatives in principal cities.

Cost Accounting Procedure

IN ORDER to know exactly how much it costs to run each truck, the Karl organization charges as many things as possible to individual trucks but, at the same time, is careful not to make the system expensively complex. Minor jobs, such as greasing, have to be performed on all trucks so they are charged to general garage expense. Service calls usually are charged to the truck except insured accident cases.

Mechanics make out a daily report, Fig. 8, and charge both time and material for unusual things. Detailed cost figures indicate the best time to replace a truck. Spare engines are charged to the fleet as a whole.

When the system was started, tires were charged and credited when changed. This proved to be cumbersome and not too accurate due to estimating the cost of the spares. While new tires now are charged to the truck, and an older one may replace it shortly after, the truck gains on some exchanges and loses on others.

Batteries are handled the same at tires to simplify accounting. They are checked once a week with a hydrometer and a voltmeter.

Trucks with high gas consumption are checked with an exhaust gas analyzer. The ignition system also is thoroughly checked. In some cases the carburetor is replaced.

For all accounting, Mrs. Karl uses 13 four-week periods a year instear of 12 months. A printed form, Periodical Truck Report, Fig. 9, is made out each period for every truck. This has a line for every day of the week and the necessary columns for all expenditures. The daily information from the daily sheets is transferred to these sheets. Each week the totals are added. At the end of a four-week period, the grand totals are transferred to a printed card, Fig. 10, made out for each truck at the beginning of the fiscal year. At the top of the yearly card are spaces for name, model, year, license, and so on. When a new card is made out for the next year, the depreciation total is carried forward, but not the other expense items.

Fig. 4 shows the 11 x 14-in. summary sheet which is posted in the garage. Each item, such as miles per gallon of gas, has figures for the current four-week period, the immediate past four-week period and the average since April 1, the beginning of Mrs. Karl's fiscal year. Other columns show the truck number, route number and the average miles per day. At the right, are five columns which are filled in on the executive sheets and the one posted

(TURN TO PAGE 146, PLEASE)

TOM . . . THE TRUCKER, SAYS . . .

"It's safety I want ...give me a Hein-Werner!"

Put yourself in the position of each of the men who drive your trucks, and you, too, will agree each truck should have a SAFE jack . . . A new Hein-Werner Hydraulic Jack.

You can't beat a sturdy Hein-Werner for safe, dependable operation. It lifts maximum loads smoothly and easily . . . Factory-tested at 1½ times rated capacity . . . Jack cannot lower accidentally as handle must be removed from pump to open release valve . . .

Other features include center-balanced malleable handle socket, and famous "Heinite" pump piston — proven by actual tests to withstand 10 times the wear of conventional cups or packings.

MODEL E59A

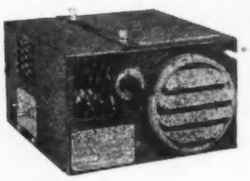
Made in models of 1½, 3, 5, 8, 12, 20, 30, 50 and 100 tons capacity — Bumper-Lift Jacks for passenger cars, Swift-Lift and Service Jacks for shop use, and Hein-Werner "Push and Pull" Hydraulic Jacks for body, fender and frame work.

Ask your jobber or write us for details

Hein-Werner HYDRAULIC JACKS

HEIN-WERNER CORPORATION • WAUKESHA, WIS.

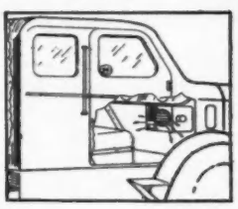
Hunter
GASOLINE HEATERS



Model UH47 (6 Volt)
$99.50 Net

Safe, Sure, Automatic Heat, Independent of Vehicle Engine

PAYS FOR ITSELF—BY SAVING FUEL AND ENGINE WEAR



• Here's heat as you want it —dependable, economical, thermostatically controlled —from a compact, efficient, easily installed gasoline heater specially designed to meet the needs of the trucking industry.

The Hunter Heater burns any type gasoline, averages less than one pint of fuel per hour. It provides constant circulation of warm air at any temperature desired, is fool proof and trouble free in operation.

Write for complete information, prices on all models.

(Some distributor, dealer territories still open.)

TRANSPORT HEATING & REFRIGERATION
• CAB HEATERS • TRAILER HEATERS
• CARGO HEATERS • CARGO COOLERS

Hunter
MANUFACTURING CO.
1550 E. 17th St., Cleveland 14, Ohio

Operating Costs

Continued from Page 144

in the driver's room. These right hand columns show costs per dollar of volume.

In making out this summary sheet, the present columns from the immediate past four-week period are copied in the past column on the new sheet. The figures for the present period are obtained from the periodical truck report sheet. Fig. 9. The "to-date column" it taken from the yearly truck figures on the yearly truck card.

As with any statistics, these require some knowledge of the organization and an understanding of the fallibility of human beings. They show up forgetting to change oil and changing it twice by mistake. Some high figures, without a note, are caused by something requiring a lot of labor, but which does not lend itself to a clear concise note. Sometimes, the man making it out neglects to put all the explanatory notes on. Employees interested either know the cause of the aberrant figures or can find out from the records. For instance, Truck 82 shows 29 miles per quart of oil. This might seem to indicate poor maintenance, but, under the rules, oil is changed every 30 days or every 1000 miles. As this truck makes only 18 miles a day or 432 miles for the period, oil consumption must be high under any condition. But in this case, through error, it was changed twice.

While management can't make any uninhibited remarks about a man's ability, the drivers themselves do some robust masculine needling about dubiously high truck operating costs or poor sales figures. This prods the backslider into more sales and better driving.

For each four-week period, Eugene Seeley, who handles the truck bookkeeping, draws a graph showing the cost in cents per mile plotted against various miles per day. He marks down the truck number at each point so the drivers can see how they compare.

One of these graphs is shown in Fig. 6. As can be seen, truck costs vary considerably. Some are so high they are not on the curve. Notes are attached to cover these cases.

Another graph is made out showing miles per gallon versus miles per day. On this, Seeley lists the "fairhaired boys" and the "gas-company friends." If the fellows don't understand the graph, they know where they stand if they are listed as a "gas-company friend."

END

Please resume reading on Page 55

Budd Wheel Distributors
provide the same service described in this advertisement

AKRON—Motor Rim Manufacturers Co.
ALBANY—Wheels, Incorporated
ALBUQUERQUE—Wheels & Brakes, Inc.
ATLANTA—Harris Automotive Service, Inc.
BALTIMORE—R. W. Norris & Sons, Inc.
BIRMINGHAM—Wheel, Rim and Parts Co.
BOSTON—New England Wheel & Rim Co.
BUFFALO—Frey, the Wheelman, Inc.
CHARLOTTE—Carolina Rim & Wheel Co.
CHATTANOOGA—Harris Automotive Service, Inc.
CHICAGO—Stone Wheel, Inc.
CINCINNATI—Rim & Wheel Service, Inc.
CLEVELAND—Motor Rim Manufacturers Co.
COLUMBUS—Hayes Wheel & Spring Service
DALLAS—Southwest Wheel, Inc.
DAVENPORT—Stone Wheel, Inc.
DAYTON—Rim & Wheel Service, Inc.
DENVER—Quinn & McGill Motor Supply Co.
DES MOINES—Des Moines Wheel & Rim Co.
DETROIT—H. & H. Wheel Service, Inc.
EVANSVILLE—Auto Wheel & Rim Service Co., Inc.
FARGO—Wheel Service Company
FORT WAYNE—Wheel & Rim Sales Co.
GRAND RAPIDS—Rim & Wheel Service Co.
HARRISBURG—Standard Wheel & Rim Co.
HARTFORD—Connecticut Wheel & Rim Co.
HOUSTON—Southwest Wheel & Equipment
INDIANAPOLIS—Indiana Wheel & Rim Co.
JACKSONVILLE—Southeast Wheel & Rim Co.
KANSAS CITY—Borbein, Young & Co.
KNOXVILLE—Harris Automotive Service, Inc.
LOS ANGELES—Wheel Industries, Inc.
LOUISVILLE—Auto Wheel & Rim Service
MEMPHIS—Beller Wheel, Brake & Supply Co.
MILWAUKEE—Stone Manufacturing Co.
MOLINE—Mutual Wheel Co.
NASHVILLE—Beller Wheel, Brake & Supply Co.
NEWARK—Automotive Safety Inc.
NEW HAVEN—Connecticut Wheel & Rim Co.
NEW ORLEANS—Southern Wheel & Rim Co.
NEW YORK—Wheels, Incorporated
OKLAHOMA CITY—Southwest Wheel, Inc.
OMAHA—Morgan Wheel & Equipment Co., Inc.
PEORIA—Peoria Wheel & Rim Co.
PHILADELPHIA—Thomas Wheel & Rim Company
PITTSBURGH—Wheel & Rim Sales Co.
PORTLAND—Six Robblees', Inc.
PROVIDENCE—New England Wheel & Rim Co.
RALEIGH—Carolina Rim & Wheel Co.
RICHMOND—Dixie Wheel Co., Inc.
ROCHESTER—Frey, the Wheelman, Inc.
SALT LAKE CITY—Henderson Rim & Wheel Service
SAN ANTONIO—Southwest Wheel & Equipment
SAN FRANCISCO—Wheel Industries, Inc.
SEATTLE—Six Robblees', Inc.
SOUTH BEND—Wire & Disc Wheel Sales & Service
SPOKANE—Bearing & Rim Supply Co.
SPRINGFIELD, ILL.—Illinois Wheel & Rim Co.
SPRINGFIELD, MO.—Borbein, Young & Co.
ST. LOUIS—Borbein, Young & Co.
ST. PAUL—Wheel Service Co.
SYRACUSE—Colbourn Wheel & Rim Service, Inc.
TACOMA—Six Robblees', Inc.
TOLEDO—Wheel & Rim Sales Co.
WICHITA—Borbein, Young & Co.

EXPORT
CLEVELAND—C. O. Brandes, Inc.

CANADA
CALGARY—Fisk Tire Service Ltd.
EDMONTON—Alberta Wheel Distributors, Ltd.
MONTREAL—General Automobile Equipment Ltd.
TORONTO—Wheel & Rim Co. of Canada, Ltd.
VANCOUVER—Wheels & Equipment, Ltd.
WINNIPEG—Ft. Garry Tire Service Ltd.

ORCHIDS TO A LADY

She is Mrs. Mabel Herman who, together with her sons Dale and Dick, operates the Herman Oil Transport Company's fleet of a hundred trucks, tractors and trailers, with headquarters in Omaha.

"Some years ago," says Mrs. Herman, "we began standardizing on Budd wheels, changing over all our equipment to them, and specifying Budd wheels for all new equipment we purchased. We have cut our tire costs from twenty to twenty-five per cent, thanks to expert advice of the distributor of Budd wheels. In addition we save hours when changing tires because Budd wheel studs withstand the strain of pneumatic wheel wrenches."

Mrs. Herman carried out this program with the advice and help of Bill Holmes of Morgan Wheel and Equipment Company, Budd wheel distributors in Omaha, who, like the Budd wheel distributor near you, listed in the column at the left, are experts in helping their customers reduce their hauling costs with exactly the right Budd wheel for the job.

The Budd Company, Detroit 14.

GENUINE

Budd

COLD TAPERED DISC

WHEEL

CCJ News Report

Continued from Page 27

Henry Ford Memorial Award

The Society of Automotive Engineers (Detroit Section) has announced a new award for the encouragement of younger engineers. The Henry Ford Memorial Award was established by the Detroit Section, but any S.A.E. member under 33 years of age is eligible to compete.

Competition is by means of original papers which have been presented to, or are suitable for presentation to an S.A.E. meeting.

1950 Domestic Motor Truck Factory Sales by G.V.W

	5,000 lb. and less	5,001–10,000	10,001–14,000	14,001–16,000	16,001–19,500	19,501–26,000	Over 26,000	Total
January	39,252	19,251	6,804	13,093	2,680	1,816	1,482	84,378
February	39,629	17,151	6,032	11,739	2,720	2,157	1,511	80,939
March	47,828	20,921	7,200	14,644	3,680	3,474	2,062	99,809
April	46,375	19,025	5,884	12,971	3,391	3,322	2,326	93,294
May	52,805	21,935	7,468	16,721	4,077	3,598	2,393	108,997
June	58,892	24,249	8,158	18,488	4,104	3,507	2,838	120,236
July	47,590	20,991	6,550	13,489	3,780	3,489	2,684	98,573
August	58,084	24,223	7,674	18,395	4,872	5,163	2,861	121,272
September	51,888	15,082	5,476	12,844	2,651	3,317	2,090	93,348
Total—9 Mos. 1950	442,343	182,828	61,246	132,384	31,955	29,843	20,247	900,846
Total—9 Mos. 1949	357,341	214,425	59,278	115,579	21,340	15,123	11,064	794,150

Shown above is "Bob" Tupes of Tupes of Saginaw Inc., 402 Davenport Street, Saginaw, Michigan. His company specializes in auto and truck springs and welding equipment.

TRAINOR

HELPER SPRINGS AND BUILD-UP KITS

Bob Tupes has installed hundreds of Trainor Build-Up Kits for fleet operators in Central Michigan. He knows that the engineering of Trainor Build-Up Kits provides maximum load carrying capacity with a minimum of increased weight.

Look up the Trainor Spring specialist in your territory and let him help you protect your truck investment. He knows how to increase your truck's carrying capacity and stabilize the load. At one time or another you may overload your vehicle—a very good reason for installing Trainor Build-Up Kits before the truck goes into service. Installation is simple and economical.

Whether yours is a new truck or one not so new—increase the length of its service life by installing Trainor Build-Up Kits.

Branches in:
CINCINNATI
COLUMBUS
INDIANAPOLIS

TRAINOR NATIONAL SPRING COMPANY
NEWCASTLE, INDIANA

1950 Truck Trailer Shipments*

	August	Eight Months
Vans		
Insulated and refrigerated	343	2,394
All other closed top	3,210	18,226
Open top	284	2,339
Total—Vans	3,837	22,959
Platforms		
With cattle and stake racks	192	987
With grain bodies	74	408
All other	1,006	5,544
Total—Platforms	1,272	6,939
Tanks		
Petroleum	472	.....
All other	29	.....
Total—Tanks	501	2,480
Pole and logging		
Single axle	150	836
Tandem axle	181	788
Total	331	1,624
Low-bed heavy haulers	163	1,138
Dump trailers	91	541
All other trailers	388	2,056
Total—Trailers	6,563	37,737
Trailer chassis	158	1,427
Total—Trailers and chassis	6,721	39,164

* Industry Division, Bureau of the Census.

Gear Nomenclature Approved

An American Standard Gear Nomenclature, Terms, Definitions, and Illustrations, B6.10-1950, has just been approved by the American Standards Association, 70 East 45th Street, New York 17. To help bring about use of uniform terminology in offices, shops, and textbooks, this standard was prepared by a committee representing manufacturers, users, and independent experts. It provides a system of terms and their meanings grouped as a logical series rather than in alphabetical order. It also includes illustrative figures which can be referred to in investigations and discussions of gear problems. The standard will be available from either the American Standards Association, 70 East 45th Street, New York 17 or from the American Society of Mechanical Engineers, 29 West 39th Street, New York 17, at $1.50 per copy.

Wages Up 9.6 Cents per Hour

Average wage increases among unionized employes of the nation's trucking industry for the third quarter of 1950 were 2.8 cents more than the per-hour increase for the corresponding quarter of 1949, according to a report of the Industrial Relations Department of the American Trucking Associations.

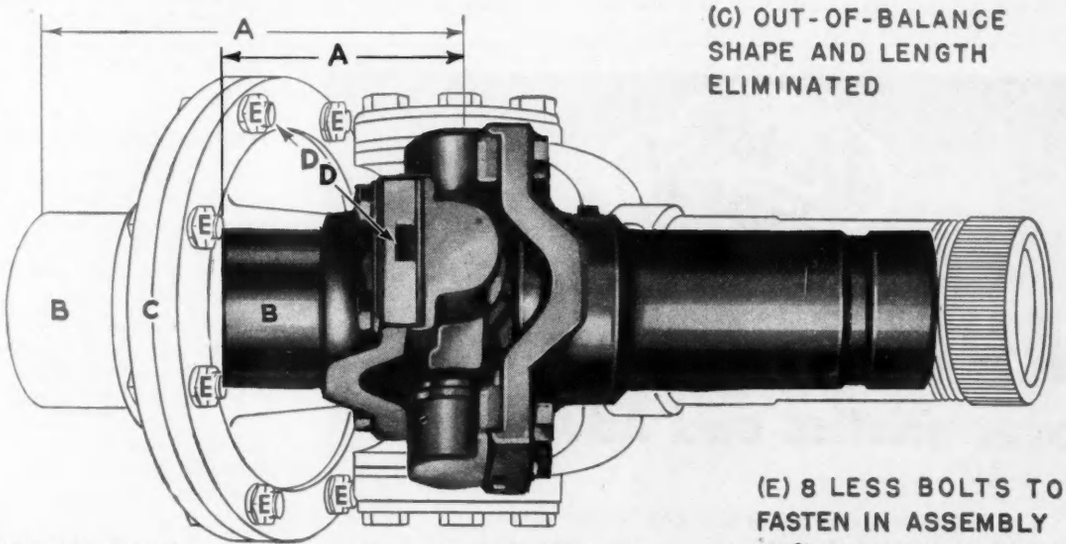
An analysis of 73 trucking labor agreement settlements by Dan Packard, Research Analyst for the Department, disclosed that

(TURN TO PAGE 150, PLEASE)

You Are PAYING For MECHANICS JOINTS

Every time you use a joint that requires unnecessary attachments and extra assembly time and labor, you are paying for MECHANICS Roller Bearing UNIVERSAL JOINTS advantages—but are not getting the benefit of them. And you are forcing your truck to carry unnecessary DEADWEIGHT that should be

(A) BRINGS BEARINGS IN THE JOINT CLOSER TO BEARINGS IN TRANSMISSION AND AXLE



(C) OUT-OF-BALANCE SHAPE AND LENGTH ELIMINATED

(B) REDUCES BOTH WEIGHT AND SIZE BY ELIMINATING THE FLANGE

(D) DRIVES THROUGH KEYS-FOR SAFETY AND LONGER LIFE

(E) 8 LESS BOLTS TO FASTEN IN ASSEMBLY 80% LESS DOWN-TIME FOR SERVICING

devoted to PAYLOAD. Let our engineers explain how MECHANICS design advantages will help give your truck competitive advantages.

MECHANICS UNIVERSAL JOINT DIVISION
Borg-Warner • 2034 Harrison Avenue Rockford, Illinois

Why Not Give YOUR Truck MECHANICS Advantages?

MECHANICS
Roller Bearing BW
UNIVERSAL JOINTS
For Cars • Trucks • Busses and Industrial Equipment

CCJ News Report

Continued from Page 148

the national average wage increase granted by truck operators during this third quarter was 9.6 cents per hour. This marks an average increase of 4.3 cents per hour over increase granted during the second quarter of 1950.

During the third quarter the number of "no-increase" settlements was four whereas during the second quarter almost one-fourth of the agreements analyzed were in "no-increase" bracket. Of the 69 third quarter settlements containing wage increases 41.2 per cent called for 10 to 12 cents; 20.6 per cent allowed 7 to 9 cents, and 23 per cent less than 7 cents. Highest wage increases were 30 cents and 44 cents per hour. Two over-the-road settlements provided increases of one-half cent per mile and one-fourth cent per mile. A majority of the contracts analyzed will expire after two years.

Rubber Use Up—Tires Down

A new high in the consumption of new rubber in the manufacture of non-transport goods was reached in August while consumption in the manufacture of transportation goods was slightly below the high May and June levels, according to a U. S. Department of Commerce report.

Exceeding the previous mark of 11,941 long tons set in June, the total for both segments soared to 114,676 tons in August, but included 920 tons applicable to previous months of 1950.

The August new rubber consumption in the non-transport goods totaled 40,871 tons, as compared with the previous high of 38,647 tons reached in June. In July, the figure was 32,231 tons.

In the transportation segment (tires, tubes, camelback, and tire repair materials) August new rubber consumption was 73,805 tons, up somewhat from the 72,858 tons posted in July, but down slightly from the high figures of 74,294 tons and 74,999 tons reported in June and May of this year. The record is 96,970 tons, set in January, 1947.

New Jersey Sizes and Weights

Here are present and new truck sizes and weights, together with other provisions passed at the last session of the New Jersey Legislature. The new maximum axle loads do not apply until March 31, 1955 to any vehicle registered in New Jersey prior to March 1, 1950, or contracted for purchase by New Jersey residents prior to that date. They do not apply, however, beginning January 1, 1951, to all out-of-state vehicles, and to any new vehicle registered in New Jersey, which was not ordered by March 1, 1950.

SIZE

	Present	New
Width	96 in.	96 in.
Height	12½ ft.	13½ ft.
Length—Single unit	35 ft.	35 ft.
Tractor semi-trailer	45 ft.	45 ft.
Other combinations	50 ft.	50 ft.

MAXIMUM AXLE LOADS

	Present	New
Single Axle	Based on tire size	22,400 lb
*Tandem Axle	800 lb per in. of width	32,000 lb

Note: The tire size provision (Section 39:3—32) is retained in applying new axle lords.
*Tandem axle must be spaced 40 in. or more apart.

MAXIMUM GROSS WEIGHTS

	Present	New
Truck—4 wheel (2 axles)	30,000 lb	30,000 lb
Truck—6 wheel (3 axles)	40,000 lb	40,000 lb
Tractor Semi-trailer, Single or tandem axle	60,000 lb	60,000 lb

Office of Defense Manpower

Secretary of Labor Tobin has established an Office of Defense Manpower to develop plans, policies and programs for meeting defense manpower requirements and has named Robert C. Goodwin, director of the Bureau of Employment Security, as its executive director.

To Clear the Records

For the past several months there has been confusion as to the identity of two cold weather products bearing the Elston brand name. One is the Elston sander, designed for truck mountings and made by Highway Safety Appliances, Inc., 1381 Marshall Ave., St. Paul 4, Minn. The other is the Elston cargo heater made by the Rue R. Elston Co., 2375 University Ave., St. Paul 4, Minn. Unfortunately the confusion crept into last month's Buyers' Directory number so we urge readers to make note of the above.

END

Please resume reading on Page 31

Vari-Speed
HANDY GOVERNOR
Characteristics and Advantages
1 Wide range of governed speeds without the necessity of any change in governor assembly.
2 Controlled light load speeds.
3 Sharp governor cut-off—minimum horsepower loss.
4 Low speed droop.
5 Final full load and no load factory calibration on air flow machine assures you accuracy and uniformity in production.
6 Simple to adjust.
7 Simple mechanical design—only one moving shaft.
8 Sturdy corrosion-free construction.
9 Stainless steel needle bearings that insure instant response.
NO OTHER VELOCITY GOVERNOR CAN GIVE YOU ALL THESE ADVANTAGES
KING-SEELEY CORPORATION
ANN ARBOR MICHIGAN
PLANTS IN ANN ARBOR GRAND RAPIDS YPSILANTI

Now Low Cost Washing for all your TRUCKS

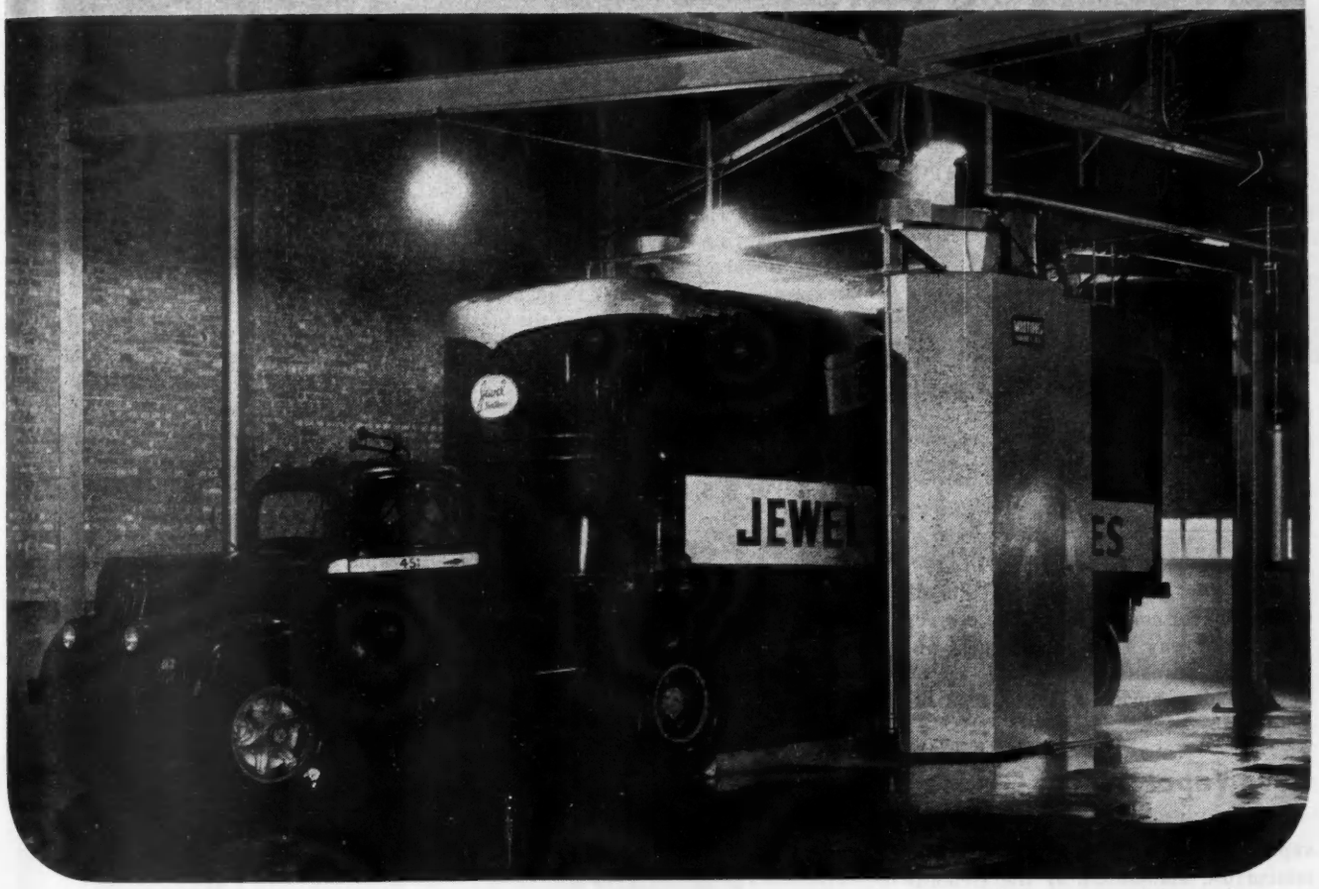
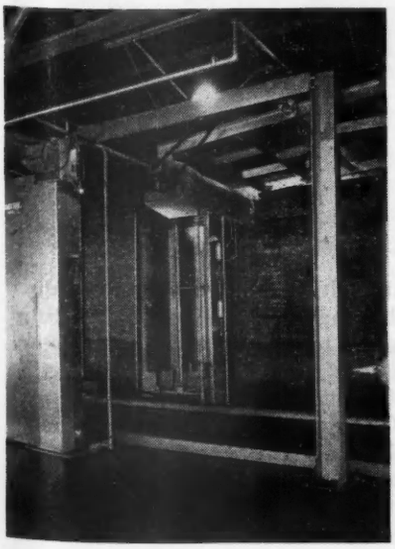


Photo courtesy of James A. Hannah, Motor Truck Service

REQUIRES LITTLE SPACE

Engineered to your needs



Now, every unit in your fleet can be kept clean—by automatic washing on regular schedule. No lost time—none of the uncertainties of the old wash rack.

A Whiting* Washer is an investment in good appearance that pays real dividends by greatly reducing washing costs. Send the coupon for information.

*Reg. U. S. Pat. Off.

WHITING WASHERS FOR BUSES & TRUCKS

Send the Coupon for Complete Details

Whiting Corporation
15695-C Lathrop Ave.
Harvey, Illinois

Please send information on Whiting Washers.

Name_____

Address_____

City_____

State_____

New Product Descriptions

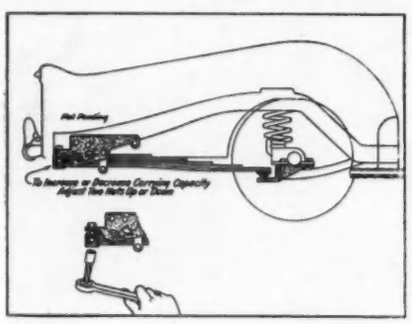
Continued from Page 78

ioned assembly acts as a shock absorber in the fuel line, overcoming fuel pump pulsations and delivering an even, smooth flow of gasoline to the carburetor.

This damping action is said to prevent carburetor flooding and clogging, protects delicate needle valves and float lever, and eliminates the need for frequent carburetor adjustments.

P58. Overload Springs

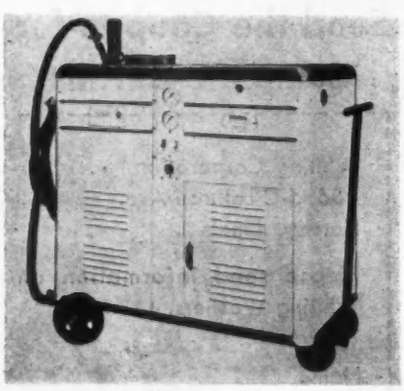
Two new overload springs featuring adjustability, are available in two types. Type 0211 fits all cars and trucks with



underslung rear leaf springs of 1½, 1¾ and 2 in. widths. Type 0411 fits all cars with rear coil springs. The correct tension for any load condition is obtained by adjusting four nuts, up or down. Laher Spring & Tire Corp., St. Louis, Mo.

P59. Vapor Steam Cleaner

A new and improved heavy-duty type vapor steam cleaning machine for automotive use announced by the General Equipment Div., Sterod Mfg. Co., Newark, N. J., is a fully automatic safety



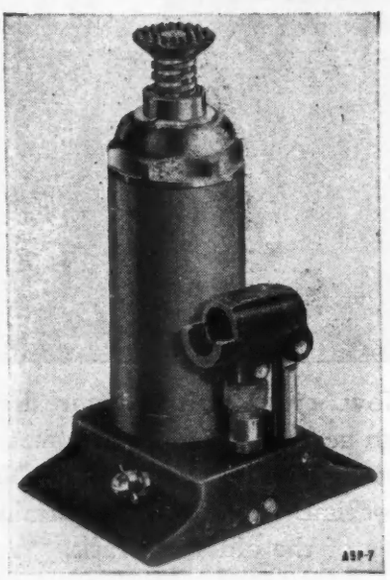
protected unit which generates full operating pressure within 90 sec. A mechanical outside safety valve is provided as a check on the electrical limit switch and by-pass valve. Heating coils are protected by a special control which stops entire unit should the water supply fail. Electrical system is protected by an over-load switch. Available in stationary or portable models of 100 or 200 gal. capacities, the portable units are mounted on a free-rolling carriage. The machine is supplied with a multi-purpose balanced swivel type of cleaning gun with gun control shut-off.

P60. Small Air Hammer

The Burgess Thomas Co. of Bloomfield, N. J., distributors for Appton Super Hammers, announces an air tool for drilling, chipping, trimming, riveting, sealing, scaling, and general applications. The hammer is small in size, measuring 9½ in. overall, and has a 1-in. diameter piston. It operates on pressures from 30 to 100 lb in accordance with the requirements of the work.

P61. Hydraulic Axle Jack

A new hydraulic axle jack, the "D-1500" series built by Auto Specialties Mfg. Co., St. Joseph, Mo., is available in 1½, 3, 5, 8 and 12-ton capacities.



The hexagonal reservoir cap is easily removed for quick access to the reservoir, which is made of precision-machined highest-grade steel tubing. Featured are engineering advancements such as: safety oil vent, which prevents jack from being forced beyond maximum height; mandrel-finished ram cylinder to assure longer cup life.

P62. Brake Bonder

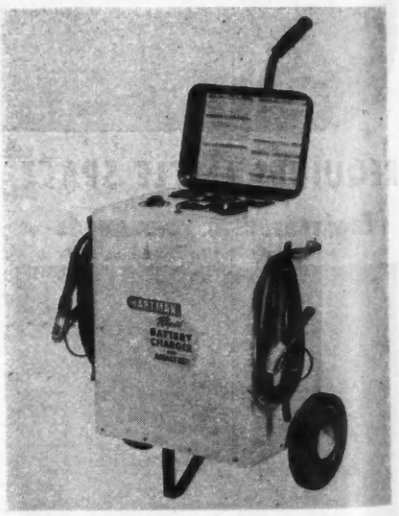
The Grizzly Saftibond "Powerbonder" is now available in a new gas-fired model. Advantages of gas firing include much lower costs of operation and more constant uniformity of heat. This model can be used with any of the common bottled gas fuels generally available.

The "Powerbonder" is simple and inexpensive to install, it is said, requiring

only an air line and a gas line, which can generally be installed by the operator himself. Only two time cycles and two pressure settings are necessary to bond all passenger car shoes.

P63. Fast Charger

The new portable Hartman AH-55 Rapid Battery Charger and Analyzer developed by Associated Equipment Corp., St. Louis, Mo., is only 27 in. high, 15 in. deep and 21 in. wide, and weighs just 85 lb. The unit offers full 100 am. output by a self-healing Mallory magnesium copper sulphide rec-

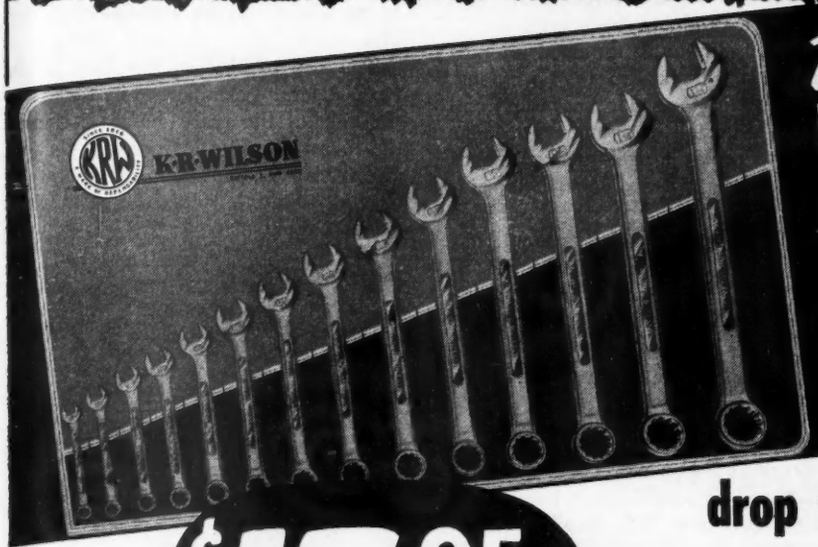


tifier. It is equipped with an overnight charging switch that will trickle charge from 1 to 10 batteries; three individual cell test meters to enable the checking of all three cells simultaneously, with 200 amp discharge load; and a completely automatic shut-off switch incorporating a watch movement that assures accuracy in timing.

(TURN TO PAGE 166, PLEASE)

IN FACE OF SKYROCKETING PRICES . . .

KRW OFFERS YOU THE MOST DARING WRENCH SET BARGAIN OF ALL TIME!



The New **KRW** *Indispensable* **WRENCH SET**

$17.95 COMPLETE

drop forged from chrome nickel molybdenum steel

COMPLETE 14-piece Box and Open End set in durable leatherette roll.

COMPLETE range of sizes from 3/8" to 1-1/4". Weight 10 lbs.

● This wrench set bargain was deliberately planned to be the most daring tool offer ever made. We've checked comparative sets. You can too! Here's what you'll find: brand A $49.10; brand B $30.14; brand C $29.61; brand D $27.85. Man, what a saving! Figure it for yourself! Only KRW — world's largest manufacturer of garage tools and equipment could make such a startling offer.

And that isn't all!

with your order you get THIS POCKET PRECISION WRENCH SET

ABSOLUTELY FREE

It's the handy companion set to the KRW indispensable WRENCH SET — and you get it free when you send your $17.95 cash with your order. Sizes from 13/64" to 7/16". Encased in beautiful plastic box that slips into the pocket. Both sets shipped postage prepaid for cash with order!

K·R·WILSON

215 MAIN ST. ● BUFFALO 3, N. Y.

DON'T WAIT FOR TOOL SHORTAGES AND SKYROCKETING PRICES. PROTECT YOURSELF NOW . . . USE THE COUPON TODAY!

K. R. Wilson, Dept. 85
215 Main St., Buffalo 3, N. Y.

O. K. KRW! Send me the 14-piece KRW indispensable WRENCH SET in Leatherette Case.

☐ My $17.95 is enclosed, so include the 8-piece pocket set free. (KRW pays postage)

☐ Send me (C.O.D.) the 14-piece wrench set. (No free pocket set with this deal!) (I pay postage)

NAME.....

ADDRESS.....

CITY..... STATE.....

GET

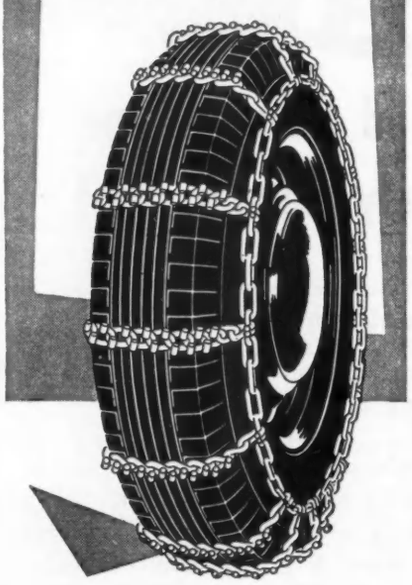
"Twice the ROAD BITE!"

with

McKAY

MULTI-GRIP

TIRE CHAINS



1. TWO CASE HARDENED TRACTION BARS PER LINK
2. 312 GRIPPING POINTS PER CHAIN
3. MORE SURFACE CONTACT THAN ANY DESIGN

McKay Multi-Grips are your best buy for better grip, longer wear, more mileage.

OTHER McKAY PRODUCTS

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- McKay-Rod Electrodes
- Mild and Stainless Welding Electrodes
- Industrial and Commercial Chain

THE McKAY COMPANY

465 McKAY BLDG. • PITTSBURGH 22, PA.

New Products

Continued from Page 164

P64. Metal Applicator

The new Tincher "BlockBinder," a high amperage-low voltage metal applicator said to greatly reduce time, labor, and material costs in the repair of cracked engines, has been announced by Tincher Products, Sycamore, Ill.

The unit eliminates the need for pins in repairing cracks up to 3 in. long, according to the manufacturer, and greatly reduces the number of pins needed to repair longer cracks. There is no distortion of the block, it is said, due to excessive temperatures such as those encountered in conventional welding operations. In fact, the area is cool enough to touch fifteen seconds after application of the metal.

P65. Truck Mirror

A new truck mirror that provides greater vision when tractors draw extra large trailers and a new heavy-duty extendible and adjustable mirror arm support are two new "KingBee" Protecto products made by American Automatic Devices Co., Chicago.

The mirror has a 4½ by 8½ in. rectangular head and a heavy-duty triangular body contour bracket. The extendible arm opens out to 29 in. The housing is of a patented, vibrationless truss type and requires no brace rods.

P66. Fire Extinguisher

A new dry chemical type fire extinguisher is said by the manufacturer to have advantages of longer range, longer duration of discharge, more complete discharge of the dry chemical, gas tight, all internal connections, built-in safety disc and is lighter in weight. The dry chemical is non-toxic, non-corrosive, non-conductor of electricity and will not freeze. Unit has Underwriters' Laboratories label and rating B-1 and C-1. American-LaFrance-Foamite Corp., Elmira, N. Y.

"Torqmatic" Drives Army

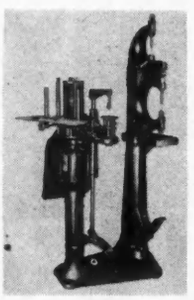
Built for the U. S. Army Ordance Dept., this 12-ton, eight-wheel truck wrecker, receives its power through an Allison "Torqmatic" transmission. The transmissions operation is similar to Buick's "Dynaflow" and Chevrolet's "Powerglide" and was designed for heavy equipment which can carry up to 50 tons

P67. Signal Lamps

A Class A signal lamp line includes a double-face lamp with the lucite lens containing 12 sq-in. of lens surface. The lucite lens is shatter-resistant and durable.

The use of the double face in the Class A lamp permits it to be seen from the side of the truck before it makes the turn. The line includes single face and flush type lamps, in complete sets or individually packed. Signal Stat. Corp., Brooklyn, N. Y.

P68. Brake Reliner



The Chicagoan, an all-purpose heavy-duty brake reliner, has a double column with separate delining and riveting stations, as well as a foot-operated driller and swivel driller grinder. This machine has a riveting throat 7 in. deep and is equipped with 6⅝ in. or 7½ in. rubber-cushioned abrasive. Chicago Rivet & Machine Co., Bellwood, Ill.

P69. Honing Machine

An improved honing machine has a re-vamped oil pumping system. New mandrels have been added to the line to increase the honing range, making it now .480 in. to 2.625 in. Other mandrels added are king pin mandrels. The machine is equipped with a gage that enables the operator to fit piston pins to within .0001 in. Sunnen Products Co., St. Louis, Mo.

P70. Socket Head Tool

To meet the need for a single tool that fits all the popular size socket screws and bolts, the H. D. Hunter Co., Los Angeles, has developed a hand tool that has five of the most popular, standard-size, socket-head wrenches that fold knife-like into a single sturdy handle. It is small enough to fit conveniently into a pocket, yet its unique design permits greater leverage than ordinary wrenches now in use, and gives easy access to even the most difficult places. The individual wrenches are made of high quality, tempered steel to assure longer life and can be ground down when the end becomes worn.

(TURN TO PAGE 168, PLEASE)

192 GALLONS RIDE FREE

By replacing carbon steel with U·S·S COR-TEN, the Body and Tank Corporation reduced the weight of this frameless trailer tank 1200 pounds. That means the equivalent weight in gasoline(192 gallons) rides without cost . . . and there's 1200 pounds less weight to haul on empty runs. Figuring the cost of delivering a gallon of gasoline at ½ cent, these free-riding gallons represent a profit increase of 96 cents on every trip.

67 GALLONS CARRIED WITHOUT COST

The weight of this 1200-gallon home delivery tanker was reduced 500 pounds by using COR-TEN. Fuel oil weighs 7.4 pounds per gallon. Thus, a 500-pound weight reduction allows more than 67 gallons to be carried *without cost*. In a busy unit like this, these free-riding gallons soon add up to very important savings.

PUT MORE PAY IN YOUR PAYLOAD

—with lightweight

U·S·S COR-TEN construction

SAVES DELIVERY COST ON 96 GALLONS

COR-TEN construction reduced the weight of this tank truck 600 pounds. By trimming off this dead weight, 96 gallons ride free and the operator saves 48 cents on every trip. A saving such as this adds up to several hundred dollars annually and repeats year after year.

240 GALLONS PAY THEIR OWN WAY

On every haul, this frameless trailer tank carries 240 gallons of gasoline *without cost*. These payload gallons ride in place of 1500 pounds of useless dead weight trimmed off by COR-TEN construction. The operator saves $1.20 per trip in hauling expense.

EVERY POUND of unnecessary weight that your trucks have to pull takes money out of your pocket. It means higher operating costs . . . a narrower profit margin. If you want to cut those costs . . . cut truck weight. It's as simple as that!

The gasoline tankers shown here, built by the Body and Tank Corporation of Mineola, N.Y., demonstrate this fact. Every 6¼ pounds of dead weight trimmed off with COR-TEN mean one gallon of gasoline is carried *without cost*. The gasoline rides in place of the non-paying dead weight. A cost-saving weight reduction like this literally means more profit . . . more *pay* in every payload.

Weight reduction pays its *biggest* return when you build light with U·S·S COR-TEN. That's because High Strength Steel, unlike other weight-reducing materials, is comparatively inexpensive. In fact, we can show you many cases where lightweight COR-TEN construction didn't cost a cent more than heavy construction with ordinary steel. As a result, the free-riding payload that COR-TEN made possible paid off immediately in *clear profits*.

Transportation units built lighter with this tough, service-tested steel stand up under severe, continuous operation; for COR-TEN is not only stronger than plain steel, but it has 4 to 6 times greater resistance to atmospheric corrosion. In addition, it offers a high resistance to load surge and road vibration.

Find out how you can use COR-TEN to cut your operating costs. A phone call or a letter to our nearest office will put you in touch with our engineers who will give you all the facts. No obligation, of course.

AMERICAN STEEL & WIRE COMPANY, CLEVELAND · CARNEGIE-ILLINOIS STEEL CORPORATION, PITTSBURGH
COLUMBIA STEEL COMPANY, SAN FRANCISCO · NATIONAL TUBE COMPANY, PITTSBURGH · TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM
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AEROL LIFT
most versatile unit lift built at a price you can afford
The Cleveland Pneumatic Tool Co.
AUTOMOTIVE DIVISION
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MOST CAR AND TRUCK MAKERS DO
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MORE PROTECTION! MORE MILEAGE!
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CHECK THE WIRE ON EVERY JOB

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the leading line
. . . most complete!
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New Products

Continued from Page 166

P71. Transmission Lift

A new hydraulic "*Unit Lift*" for use in removing and replacing transmissions, heavy drive shafts, gasoline tanks, truck springs and power take-offs. A heavy base with large axle-mounted and caster wheels provide stability to the unit. A special self-contained device for loading and unloading work at bench height is provided. The rails of the loading and unloading device are hinged and adjustable for width. The fixture table may be titled backward and forward, left and right, adjusted sidewise in either direction, and may be rotated. The lift is equipped with hydraulic pump which elevates table ¾ in. per stroke. Table is lowered by release lever and may be stopped in any position. Weaver Mfg. Co., Springfield, Ill.

P72. Stop Lights

The new giant size protected stop light has an armored construction employing heavy 13 gauge steel. The lens of thick glass is red and has the word "Stop" in black. This new stop light is 11½ in. long, 3 in. high, 2½ in. in depth and mounts flush on the vehicle.

A new round Giant stop light with a lens of 6⅝ in. visible diameter comes in red or amber with or without the word "Stop" in big bold letters on a black band background. Either flush or L-type brackets are available. R. R. Dietz Co., Syracuse, N. Y.

P73. Cylinder Lubricator

The upper cylinder lubricator supplies additive oil to the top cylinder

(TURN TO PAGE 170, PLEASE)

RR Buys Macks

Warren Taussig (left), vice president and general manager of the Burlington Truck Lines, Inc., wholly-owned subsidiary of the Chicago, Burlington & Quincy RR, accepts delivery of five new Mack LFT diesels from Dick Meinert, Mack Truck fleet manager. The new diesels are part of the line's modernization program

BURNDY HYSPARK
The ignition terminal that fits ALL spark plugs.

for information write:
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who replace with
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RESTORE ORIGINAL EQUIPMENT TO THEIR TRUCKS, TRAILER AND BUSES
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LAMPS & MIRRORS
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Cut costs

with Gulflube Motor Oil·X.H.D.

✓ in stop and go service

✓ in extra heavy-duty service

The piston in the photo above is from a Chevrolet taxicab engine after 26,000 miles with ordinary oil.

This photo shows a piston from the same type engine after about the same mileage with Gulflube Motor Oil X.H.D.

Out of Gulf Research Laboratories has come an outstanding new oil that can help you extend overhaul periods and reduce oil consumption—Gulflube Motor Oil X.H.D.

Originally developed for extremely heavy duty operating conditions, Gulflube Motor Oil X.H.D. has proven to be just as effective in stop-and-go light duty service.

Low temperature sludge has been a serious problem for years to operators of fleets in this type of service, such as taxicab, dairy, and bakery fleets. Gulflube Motor Oil X.H.D. greatly reduces the accumulation of this objectionable sludge, prevents rust formation, and prolongs engine life.

The photographs above clearly demonstrate the superior performance of Gulflube Motor Oil X.H.D. in a taxicab operation, for example. Send the coupon below for a pamphlet which gives you all the facts on this great new oil.

GULF OIL CORPORATION · GULF REFINING COMPANY

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Gulf Refining Company
Room 3SZ, Gulf Building, Pittsburgh, Pa.

Gentlemen:

Please send me, without obligation, a copy of the pamphlet "Gulflube Motor Oil X.H.D."

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The fastest growing idea in the auto repair business today!

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Fingertip System

of CARBURETOR REBUILDING

HYGRADE
LONG ISLAND CITY 1, N. Y.

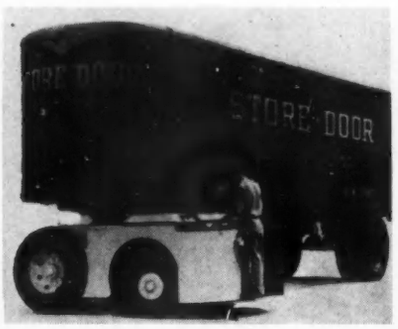
New Products

Continued from Page 168

areas through the carburetor by using the special "choke" on the dashboard every 300 or 400 mi. Unit is packed complete with accessories and instructions for installation. DuHon-Lainson Co., Hastings, Nebr.

P74. Spotting Tractor

An all-purpose tractor to move and spot trailers, has a hydraulically operated transmission, steering, fifth-wheel elevator and winch. Through its eight speeds forward and eight in reverse, the tractor can negotiate an 8 per cent grade with a 28,000 lb gvw at 6.7 mph, and a 160,000-lb gvw load at 1.2 mph up the same grade.



The vehicle's tractive force and drawbar pull can haul 15 vehicles of 20 tons gross weight each on level ground. The hydraulic fifth-wheel mechanism moves through 18 in., and the fifth-wheel plate can lift 40 tons. Its winch, also powered directly from the 100-hp engine, has a 16,000-lb capacity. Its turning radius is 11½ ft. The unit can accommodate various types of auxiliary equipment, such as fork lifts, booms, snow plows. Columbia Truck & Equipment Sales, Inc., New York, N. Y.

P75. Two-Way Radio

New and more powerful RCA Carfone radio communication equipment, meeting both city and suburban mobile communication needs of public utilities, and police, fire-fighting, taxi, and commercial services, has been announced by the RCA Engineering Products Department.

The new Model CMV-4A Carfone, two-way mobile radio, is designed to supply over 30 watts of power output over the 152-174 megacycle range.

The unit consists of a single-unit transmitter, receiver, and power supply. Other units of the equipment consist of speaker, control unit, microphone, and antenna. Radio Corp. of America, Camden, N. J.

END

Please resume reading Page 81

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MOTOR OIL AND LUBES

100% PURE PENNSYLVANIA

Member, Penna. Grade Crude Oil Association

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Both "V" TYPE and ONE WAY BLADE TYPE

hand or power hydraulic control

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Fit all types of Tire Chains. Made in 5 sizes.

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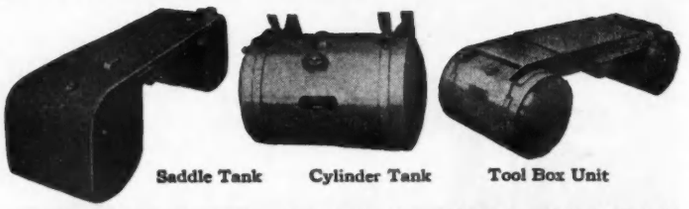
HAVE FLEET OWNER ACCEPTANCE . . .

because all Snyder Safety Tanks are designed to stand up under the jolts of heavy loads, high speeds and the shock of the road.

Snyder Tanks embody the famous "Flame Guard" Safety Valve and the new Snyder Fusible Fill Cap.



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REAR WHEEL **STUDS**
for all Trucks
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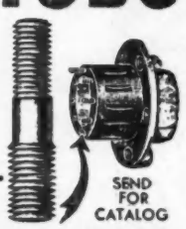

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THE COMPLETE LINE
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Industrial Notes

General Motors has announced purchase of the plant of the **Chicago Pneumatic Tool Co.** at Second Boulevard at Amsterdam, Detroit. The tool company's Detroit operations will be transferred to Utica, N. Y.

The Wagner Electric Corp. conducted a successful plant visit at the main plant in St. Louis, when more than 15,000 people toured the entire plant.

The newest major unit in **The Texas Co.'s** research expansion program has been completed at the company's Beacon, N. Y., laboratories. The brick-faced building affords 55,000 sq ft of added research area and increases by approximately 40 per cent the facilities of Texaco's main research center, the Beacon Laboratories.

C. Eugene Johnson, executive vice-president of **Pacific Intermountain Express Co.**, has announced that contract has been let and work started on a remodeling and expansion program at the company's Los Angeles motor freight terminal, located at 2300 E. Seventh Street, that city. Contract calls for the expenditure of $130,000.

Shand & Jurs Co. of Berkeley, Calif., manufacturers of petroleum transportation, storage and safety equipment, have recently moved its Chicago branch offices to 10409 S. Western Ave., Chicago 43.

Expanded facilities to serve trucking, industrial, and other users of Diesel engines have been opened in Toledo, Ohio, by **Cummins Diesel Service and Sales of Michigan, Inc.** Headquarters for this dealership are 3601 Gratiot Avenue, Detroit.

International Harvester Co. has announced the consolidation of its West Haven, Conn., motor truck district office with the Albany and Boston district offices.

Benjamin R. Miller, director of Industrial Relations for the **American Trucking Associations,** has been selected by James K. Knudson, Defense Transport Administrator, to assist in developing a manpower division and to act for the Administrator.

KINNEAR Rolling Doors

For Trucks or Buildings. Kinnear Rolling Doors open straight up . . . coil out of the way overhead . . . save floor and wall space . . . open and close freely in tightest quarters. All-metal curtain gives rugged protection. Motor or manual control. Any size. Write

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ROLLWAY
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BETTER than Ever Before

Repower with
RAMCO
10 up
PISTON RINGS

Better—but *not* more expensive!
SHULER AXLES
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